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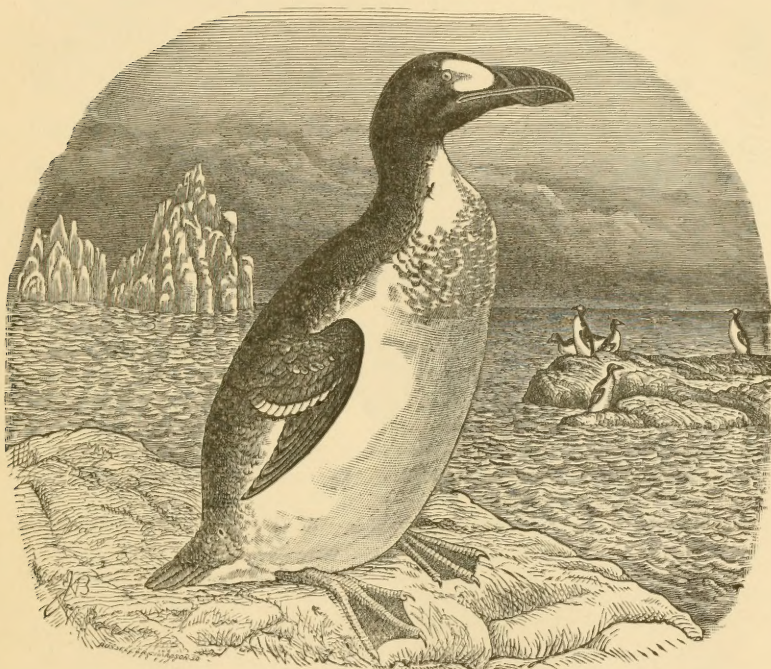
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{ VOL. XXVII.

The Auk

A Quarterly Journal of Ornithology

EDITOR
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VOLUME XXVII

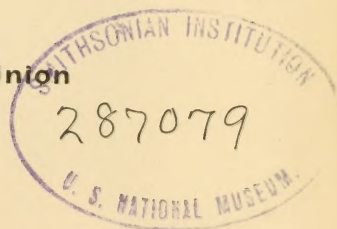
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GODWIN-AUSTEN, Lieut.-Col. H. H., Nore, Hascombe, Godalming, England.....	1884
GOELDI, Prof. Dr. EMIL A., 36 Zieglerstrasse, Bern, Switzerland....	1903
GRANDIDIER, ALFRED, 6 Rond-Point des Champs Elysées, Paris....	1883
GRANT, WILLIAM R. OGILVIE, British Museum (Nat. Hist.), Cromwell Road, London, S. W.....	1899
GURNEY, JOHN HENRY, Keswick Hall, Norwich, England.....	1883
HARTING, JAMES EDMUND, Edgewood, Weybridge, Surrey, England..	1883
HAYEK, Dr. GUSTAV VON, Vienna.....	1884
HELLMAYR, Dr. E. C., Neuhauserstrasse 51.II, Munich, Germany....	1903
HENNICKE, Dr. CARL R., Gera, Reuss, Germany.....	1907
HENSON, HARRY V., Yokohama.....	1888
HERMAN, OTTO, Budapest, Hungary.....	1908
HUDSON, WILLIAM HENRY, Tower House, St. Luke's Road, West- bourne Park, London, W.....	1895
IHERING, Dr. HERMANN VON, Museu Paulista, São Paulo, Brazil....	1902

KNUDSON, VALDEMAR, Kauai, Hawaiian Islands.....	1888
KRUKENBERG, Dr. E. F. W., Würzburg, Germany.....	1884
KRÜPER, Dr. THEOBALD J., University Museum, Athens, Greece....	1884
LEGGE, WILLIAM V., Cullenswood House, St. Mary's, Tasmania....	1891
MACFARLANE, RODERICK, Winnipeg, Manitoba.....	1886
MADARÁSZ, Dr. JULIUS VON, National Museum, Budapest, Hungary.	1884
MENZBIER, Dr. M., Imperial Society of Naturalists, Moscow.....	1884
NAMIYE, M., Tokio.....	1886
NICHOLSON, FRANCIS, The Knoll, Windermere, England.....	1884
NORTH, ALFRED J., Australian Museum, Sydney, New South Wales.	1902
OATES, EUGENE WILLIAM, 1 Carlton Gardens, Ealing, London, W...	1884
PALMÉN, Dr. J. A., Helsingfors, Finland.....	1883
PYCRAFT, W. P., British Museum (Nat. Hist.), Cromwell Road, London, S. W.....	1902
RAMSEY, E. P., Sydney, New South Wales.....	1884
RINGER, FREDERIC, Nagasaki.....	1888
ROTHSCHILD, Hon. WALTER L., Zoölogical Museum, Tring, England.	1898
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TSCHUSI ZU SCHMIDHOFFEN, VICTOR RITTER VON, Villa Tännenhof, bei Hallein, Salzburg, Austria.....	1884
WATERHOUSE, F. H., 3 Hanover Square, London, W.....	1889
WINGE, Dr. HERLUF, University Zoölogical Museum, Copenhagen....	1903
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THAYER, JOHN ELIOT, Lancaster, Mass.	1905
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BEHR, OTTO, Lopez, Pa.	1907
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BINGAMAN, W. H., R. D. No. 5, Algona, Iowa.	1906
BIRDSEYE, CLARENCE, 50 Morningside Ave., W., New York City.	1908
BLACKWELDER, ELIOT, Univ. of Wisconsin, Madison, Wis.	1895
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BLAKE, FRANCIS G., Blanchard, Maine.	1901
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BOGERT, WILLIAM S., Box 53, Leonia, N. J.....	1904
BOHLMAN, HERMAN T., 202 Occident St., Portland, Ore.....	1901
BOLT, BENJAMIN FRANKLIN, 1421 Prospect Ave., Kansas City, Mo. . .	1909
BOND, HARRY L., Lakefield, Minn.....	1809
BOSSON, CAMPBELL, 27 Hereford St., Boston, Mass.....	1906
BOUDINOT, MRS. H. R., 302 Rusholme St., Davenport, Iowa.....	1909
BOWDISH, B. S., Demarest, N. J.....	1891
BOWDISH, MRS., B. S., Demarest, N. J.....	1902
BOWDITCH, HAROLD, Pond St., Jamaica Plain, Mass.....	1900
BOWLES, JOHN HOOPER, Greyson Hotel, Santa Barbara, Cal.....	1891
BOYCE, JOHN J., Juneau, Alaska.....	1909
BOYD, TRUSTIN B., Kirkwood, Mo.....	1908
BRACKEN, MRS. HENRY MARTYN, 1010 Fourth St. S. E., Minneapolis, Minn.....	1897
BRADFORD, MRS. J. L., Morris Building, New Orleans, La.....	1897
BRADFORD, MOSES B. L., Concord Public Library, Concord, Mass....	1889
BRADLEE, THOMAS STEVENSON, Somerset Club, Boston, Mass.....	1902
BRAINERD, DR. JOHN B., 57 Monmouth St., Brookline, Mass.....	1909
BRANDRETH, COURTENAY, Cliff Cottage, Ossining, N. Y.....	1905
BRANDRETH, FRANKLIN, Cliff Cottage, Ossining, N. Y.....	1889
BREWER, MRS. ERNEST E., 419 Cumberland Ave., Portland, Me.....	1908
BREWSTER, EDWARD EVERETT, 316 East C St., Iron Mountain, Mich.	1893
BRIDGE, MRS. EDMUND E., 52 Wyman St., West Medford, Mass.....	1902
BRIGHT, MISS ANNA L., Green Hill Farm, Overbrook, Pa.....	1903
BRIMLEY, H. H., Raleigh, N. C.....	1904
BRISTOL, JOHN I. D., 45 West 74th St., New York City.....	1907
BROCK, DR. HENRY HERBERT, 687 Congress St., Portland, Me.....	1894
BROOKS, WINTHROP S., Adams St., Milton, Mass.....	1907
BROOKS, REV. EARLE AMOS, Weston, W. Va.....	1892
BROWN, ARTHUR L., 217 Spring St., West Roxbury, Mass.....	1908
BROWN, C. EMERSON, Boston Society Natural History, Boston, Mass.	1908
BROWN, EDWARD J., U. S. Nat. Museum, Washington, D. C.....	1891
BROWN, HUBERT H., 72 Gothic Ave., Toronto, Ontario.....	1889
BROWN, STEWARDSON, 20 E. Penn St., Germantown, Philadelphia, Pa.	1895
BRUEN, FRANK, 218 Main St., Bristol, Conn.....	1908
BRYANT, OWEN, Cohasset, Mass.....	1903
BUCK, HENRY ROBINSON, 18 Girard Ave., Hartford, Conn.....	1897
BUMPUS, DR. HERMON C., Am. Mus. Nat. Hist., New York City.....	1901
BURGESS, JOHN KINGSBURY, Chestnut St., Dedham, Mass.....	1898
BURKE, WM. BARDWELL, 130 Spring St., Rochester, N. Y.....	1901
BURNETT, WILLIAM L., Box 517, Loveland, Colo.....	1895
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BURTCH, VERDI, Branchport, N. Y.....	1903
BUTLER, MISS CHARLOTTE W., 75 Cabot St., Beverly, Mass.....	1904
BUTTRICK, PHILIP L., 296 Columbus Ave., New Haven, Conn.....	1907

BUXBAUM, Mrs. CLARA E., St. Joseph, Mich.....	1895
CABOT, LOUIS, Brookline, Mass.....	1904
CALLENDER, JAMES PHILLIPS, 603 Springfield, Ave., Summit, N. J....	1903
CAMERON, E. S., Fallon, Montana.....	1903
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CARPENTER, Rev. CHARLES KNAPP, 183 Fox St., Aurora, Ill.....	1894
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CARTER, JOHN D., Lansdowne, Pa.....	1907
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CASE, CLIFFORD M., 7 Holcomb St., Hartford, Conn.....	1892
CASH, HARRY A., 54 Spring St., Pawtucket, R. I.....	1898
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DYCHE, Prof. L. L., Lawrence, Kansas.....	1886
DYKE, ARTHUR CURTIS, Bridgewater, Mass.....	1902
EASTGATE, ALFRED, Tolna, Nelson Co., N. D.....	1906
EASTMAN, FRANCIS B., Fort Benjamin Harrison, Indiana.....	1909
EASTMAN, HARRY D., Framingham, Mass.....	1891
EATON, Miss MARY S., 8 Monument St., Concord, Mass.....	1909
EDSON, JOHN M., Marietta Road, Bellingham, Wash.....	1886
EDWARDS, STANLEY W., 36 Pearl St., Hartford, Conn.....	1907
EHINGER, Dr. CLYDE E., 100 Rosedale Ave., West Chester, Pa.....	1904
EICHE, AUGUST, 1133 O St., Lincoln, Neb.....	1902
EIFRIG, Rev. C. W. GUSTAVE, Addison, Ill.....	1901
EIMBECK, Dr. A. F., New Haven, Mo.....	1906
ELLS, GEORGE P., Norwalk, Conn.....	1904
ELROD, Prof. MORTON J., University of Montana, Missoula, Montana..	1892
EMBODY, GEORGE CHARLES, 315 College Ave., Ithaca, N. Y.....	1898
EMERSON, L. P., 23 Fairfax Hall, Cambridge, Mass.....	1908
EMMET, CHRISTOPHER TEMPLE, Stony Brook, N. Y.....	1909
EMMET, ROBERT T., New Rochelle, N. Y.....	1904
EMORY, Mrs. MARY DILLE, 156 Foundry St., Morgantown, W. Va....	1899
ELLIOTT, Dr. E. EARL, 63 William St., Lyons, N. Y.....	1909
ENDERS, JOHN O., Box 546, Hartford, Conn.....	1904
ESSICK, WILLIAM S., 536 Penn St., Reading, Pa.....	1906
EUSTIS, RICHARD S., 17 Highland St., Cambridge, Mass.....	1903

EVANS, WILLIAM B., Westtown, Pa.....	1897
EVERETT, WILLIAM M., Demarest, N. J.....	1902
FARLEY, JOHN A., 105 Summer St., Malden, Mass.....	1904
FARR, MARCUS S., Princeton University, Princeton, N. J.....	1900
FARWELL, MRS. FRANCIS COOLEY, Edgewood, Lake Forest, Ill.....	1898
FARWELL, MRS. JOHN V., Jr., Ardleigh, Lake Forest, Ill.....	1896
FAY, S., PRESCOTT, 3 Brimmer St., Boston, Mass.....	1907
FELGER, ALVA HOWARD, North Side High School, Denver, Colo....	1898
FELL, Miss EMMA TREGO, Holicong, Pa.....	1903
FERRY, JOHN FARWELL, Field Museum of Nat. Hist., Chicago, Ill...	1894
FIELD, EDWARD B., 30 Gillette St., Hartford, Conn.....	1898
FISHER, Miss ELIZABETH WILSON, 1502 Pine St., Philadelphia, Pa...	1896
FISHER, G. CLYDE, De Funiak Springs, Fla.....	1908
FISHER, WALTER T., 26 Holyoke St., Cambridge, Mass.....	1907
FLANAGAN, JOHN H., 392 Benefit St., Providence, R. I.....	1898
FLETCHER, MRS. MARY E., Proctorsville, Vt.....	1898
FOOTE, Miss F. HUBERTA, 90 Locust Hill Ave., Yonkers, N. Y.....	1897
FORD, EDWIN S., 71 Washington St., Morristown, N. J.....	1907
FORDYCE, GEO. L., 40 Lincoln Ave., Youngstown, Ohio.....	1901
FOWLER, FREDERICK HALL, 221 Kingsley Ave., Palo Alto, Cal.....	1892
FOWLER, HENRY W., Acad. Nat. Sciences, Philadelphia, Pa.....	1898
FOX, Dr. WILLIAM H., 1826 Jefferson Place, Washington, D. C.....	1883
FRANKLIN, DWIGHT, Amer. Mus. Nat. Hist., New York City.....	1907
FRASER, DONALD, Johnstown, N. Y.....	1902
FRAZIER, J. F., Audubon, Iowa.....	1909
FREEMAN, Miss HARRIET E., 37 Union Park, Boston, Mass.....	1903
FREEMAN, Dr. LEONARD, 1374 Elizabeth St., Denver, Colo.....	1909
FRENCH, CHARLES H., Canton, Mass.....	1904
FRENCH, MRS. TERESA I., Canton, Mass.....	1908
FULLER, MRS. ELLA M., Needham, Mass.....	1909
FULLER, T. OTIS, Needham, Mass.....	1904
FUTCHER, Dr. THOMAS B., 23 W. Franklin St., Baltimore, Md.....	1906
GAINES, EDWARD F., Ritzville, Wash.....	1908
GANO, Miss LAURA, 744 National Road, W., Richmond, Ind.....	1903
GARDINER, CHARLES BARNES, 5 Minard Place, Norwalk, Ohio.....	1903
GARRICK, JAMES P., Jr., Weston, S. C.....	1906
GATES, FRANK C., 4540 N. Lincoln St., Chicago, Ill.....	1908
GATH, JOHN, Box 236, Torrington, Conn.....	1901
GIBSON, LANGDON, 5 Union St., Schenectady, N. Y.....	1904
GIFFORD, EDWARD WINSLOW, Cal. Acad. Sci., San Francisco, Cal....	1904
GILMAN, M. FRENCH, Sacaton, Arizona.....	1907
GOODALE, Dr. JOSEPH LINCOLN, 258 Beacon St., Boston, Mass.....	1885
GOODELL, MRS. JAMES P., Rhinebeck, N. Y.....	1909
GOODRICH, JULIET T., 1210 Astor St., Chicago, Ill.....	1904
GOODWIN, Miss AMELIA M., 10 Follen St., Cambridge, Mass.....	1904
GOSS, Mrs. ALETTA W., 5475 Ridgewood Court, Chicago, Ill.....	1902

GOULD, JOSEPH E., 5 Clifton St., Norfolk, Va.....	1889
GRAHAM, WM. J., Aledo, Ill.	1909
GRANGER, Miss HELEN, Wilder Hall, Amherst, Mass.	1904
GRANGER, WALTER Amer. Mus. Nat. Hist., New York City.....	1891
GRANT, Mrs. H. T., 187 Bowen St., Providence, R. I.	1909
GRAVES, Mrs. CHARLES B., 66 Franklin St., New London, Conn.....	1905
GREENOUGH, Mrs. AMELIA P., 377 Beacon St., Boston, Mass.....	1904
GREENOUGH, HENRY Vose, 23 Monmouth Court, Brookline, Mass..	1901
GREGORY, STEPHEN S., Jr., 100 Washington St., Chicago, Ill.....	1906
GRISCOM, LUDLOW, 21 Washington Sq., N., New York City.....	1908
GRONBERGER, S. M., Smithsonian Inst., Washington, D. C.	1909
GROSS, ALFRED O., 49 Wendell St., Cambridge, Mass.....	1907
HADLEY, ALDEN H., Monrovia, Indiana.....	1906
HALES, HENRY, Ridgewood, N. J.	1890
HALL, H. PORTER, Leominster, Mass.....	1904
HAMILTON, Dr. B. A., Highland Park, Ill.	1909
HANKINSON, THOS. LEROY, Charleston, Ill.	1897
HANN, HERBERT H., Mt. Hood, Oregon.....	1903
HARDON, Mrs. HENRY W., 315 West 71st St., New York City.....	1905
HARDY, JOHN H., Jr., 24 Irving St., Arlington, Mass.....	1905
HARPER, FRANCIS, 557 First Ave., College Point, N. Y.....	1907
HARPER, SAMUEL A., 409 N. 3rd Ave., Maywood, Ill.....	1908
HARRIMAN, Miss MARY, 1 E. 69th St., New York City.....	1899
HART, CHARLES G., Box 47, East Berlin, Conn.....	1908
HARVEY, Miss RUTH SAWYER, Bond Hill, Cincinnati, Ohio.....	1902
HASKELL, Miss HELEN P., 1207 Henry St., Alton, Ill.....	1905
HATHAWAY, HARRY S., Box 1466, Providence, R. I.....	1897
HAVEMEYER, H. O., Jr., 113 Wall St., New York City.....	1893
HAYES, Miss PAULINE J., 212 S. Sycamore St., Centralia, Ill.....	1907
HAZARD, Hon. R. G., Peace Dale, R. I.....	1885
HEAD, Miss ANNA, 2538 Channing Way, Berkeley, Cal.....	1903
HEIL, CHARLES E., Needham, Mass.....	1908
HELME, ARTHUR H., Miller Place, N. Y.....	1888
HENDERSON, Judge JUNIUS, Boulder, Colo.....	1903
HENDRICKSON, W. F., 276 Hillside Ave., Jamaica, N. Y.....	1885
HENN, ARTHUR WILBUR, Field Mus. Nat. Hist., Chicago, Ill.....	1909
HENNING, CARL FRITZ, 922 8th St., Boone, Ia.....	1906
HENNINGER, Rev. WALTHER F., New Bremen, Ohio.....	1898
HERRICK, HAROLD, 25 Liberty St., New York City.....	1905
HERSEY, LUMAN J., 2121 W. 34th Ave., Denver, Colo.....	1909
HESS, ISAAC E., Philo, Ill.....	1909
HIGBEE, HARRY G., 13 Austin St., Hyde Park, Mass.....	1900
HILL, A. C., 400 Pleasant St., Belmont, Mass.....	1905
HILL, JAMES HAYNES, Box 485, New London, Conn.....	1897
HILL, Mrs. THOMAS R., 4629 Baltimore Ave., Philadelphia, Pa.....	1903
HINE, ASHLEY, Box 78, Banff, Alberta.....	1909

HINE, Prof. JAMES STEWART, Ohio State Univ., Columbus, Ohio.....	1899
HINE, Mrs. JANE L., Sedan, Ind.....	1890
HITCHCOCK, FRANK H., Metropolitan Club, Washington, D. C.....	1891
HIX, GEORGE E., 630 Columbus Ave., New York City.....	1904
HODGE, Prof. CLIFTON FREMONT, Clark Univ., Worcester, Mass.....	1899
HOLBROOK, Miss ISABEL B., R. I. Normal School, Providence, R. I....	1905
HOLDEN, Mrs. EMELINE R., 13 E. 79th St., New York City.....	1902
HOLDEN, Mrs. EDWIN B., 323 Riverside Drive, New York City.....	1903
HOLLAND, Dr. WILLIAM J., Carnegie Institute, Pittsburgh, Pa.....	1899
HOLLISTER, NED, U. S. National Museum, Washington, D. C.....	1894
HOLLISTER, WARREN D., care of Continental Oil Co., Denver, Colo....	1901
HOLMAN, RALPH H., 33 Chestnut St., Stoneham, Mass.....	1907
HOLT, ERNEST G., Y. M. C. A., Montgomery, Ala.....	1907
HOLT, Mrs. NANCY W. C., 136 Chauncey St., Cambridge, Mass.....	1908
HONYWILL, ALBERT W., Jr., 171 Ellsworth Ave., New Haven, Conn....	1907
HORSFALL, BRUCE, Acampo, Cal.....	1905
HOWELL, A. BRAZIER, 1 N. Holliday St., Baltimore, Md.....	1909
HOWELL, BENJAMIN F., Jr., R. F. D. No. 1, Boonton, N. J.....	1907
HOWE, CARLTON D., Essex Junction, Vt.....	1901
HOWE, Miss LOUISE, 53 Linden St., Brookline, Mass.....	1903
HOWE, REGINALD HEBER, Jr., Middlesex School, Concord, Mass.....	1895
HOWLAND, RANDOLPH H., 164 Wildwood Ave., Upper Montclair, N. J....	1903
HOXIE, WALTER J., 1522 Bull St., Savannah, Ga.....	1909
HOYT, Miss ANNIE S., Oyster Bay, N. Y.....	1909
HOYT, WILLIAM H., Box 425, Stamford, Conn.....	1907
HUBBARD, LUCIUS, 117 E. Madison St., South Bend, Ind.....	1908
HUBBARD, Dr. LUCIUS L., Houghton, Mich.....	1907
HUBBARD, Mrs. SARA A., 177 Woodruff Ave., Brooklyn, N. Y.....	1891
HUNN, JOHN T. SHARPLESS, 1218 Prospect Ave., Plainfield, N. J....	1895
HUNT, CHRESWELL J., 719 S. Elmwood Ave., Oak Park, Ill.....	1902
HUNTER, W. D., Box 208, Dallas, Texas.....	1899
INGALLS, CHARLES E., East Templeton, Mass.....	1885
INGERSOLL, ALBERT M., 836 5th St., San Diego, Cal.....	1885
IRVING, JOHN, 52 Broadway, care of B. N. Cardoza, N. Y. City.....	1894
ISHAM, C. B., 30 E. 63d St., New York City.....	1891
IVES, ROY C., R. R. No. 2, Clare, Iowa.....	1908
JACKSON, THOMAS H., 304 N. Franklin St., West Chester, Pa.....	1888
JAMES, Mrs. I. M., 105 W. Court St., Doylestown, Pa.....	1909
JENNEY, CHARLES F., 100 Gordon Ave., Hyde Park, Mass.....	1905
JEWETT, STANLEY G., 582 Bidwell Ave., Portland, Oregon.....	1906
JEWETT, McCORMICK, 205 Yale Station, New Haven, Conn.....	1909
JOHNSON, Mrs. GRACE PETTIS, Museum of Nat. Hist., Springfield, Mass....	1908
JOHNSON, FRANK EDGAR, 16 Amackassin Terrace, Yonkers, N. Y....	1888
JOHNSON, JAMES HOWARD, Bradford, N. H.....	1894
JOHNSON, WALTER ADAMS, 18 Gramercy Park, New York City.....	1889
JOHNSON, WILLIAM S., Lyons, N. Y.....	1893

JORDAN, A. H. B., Everett, Wash.....	1888
JUDD, ELMER T., Cando, N. D.....	1895
JUDD, ROBERT S., Bethel, Conn.....	1906
KEYS, JAMES EDWARD, 328 St. George St., London, Ontario.....	1899
KEIM, THOMAS DANIEL, 405 Radcliffe St., Bristol, Pa.....	1902
KELLOGG, CHARLES D., North Newry, Maine.....	1908
KENNARD, FREDERIC HEDGE, Dudley Road, Newton Centre, Mass....	1892
KENT, EDWIN C., 90 West St., New York City.....	1907
KERMODE, FRANCIS, Curator Provincial Museum, Victoria, B. C....	1904
KEYES, Prof. CHAS. R., Mt. Vernon, Ia.....	1904
*KIDDER, NATHANIEL T., Milton, Mass.....	1906
KILGORE, WILLIAM, JR., 1705 4th Ave., S. Minneapolis, Minn.....	1906
KILMAN, A. H., Ridgeway, Ontario.....	1909
KING, LE ROY, 20 E. 84th St., New York City.....	1901
KIRKHAM, Mrs. JAMES W., 275 Maple St., Springfield, Mass.....	1904
KIRKWOOD, FRANK C., Long Green, Md.....	1892
KLOSEMAN, Miss JESSIE E., 4 Spruce St., Dedham, Mass.....	1909
KNAEBEL, ERNEST, Dept. of Justice, Washington, D. C.....	1906
KNAPP, Mrs. HENRY A., 301 Quincy Ave., Scranton, Pa.....	1957
KNOLHOFF, FERDINAND WILLIAM, 28 Winans St., East Orange, N. J.....	1890
KOPMAN, HENRY HAZLITT, 410 Pine St., New Orleans, La.....	1899
KREMER, ROLAND EDWARD, 1720 Jackson St., Madison, Wis.....	1909
KUSER, ANTHONY R., Bernardsville, N. J.....	1908
KUTCHIN, Dr. VICTOR, Green Lake, Wis.....	1905
LACEY, HOWARD GEORGE, Kerrville, Texas.....	1899
LANCASHIRE, Mrs. JAMES HENRY, Alma, Mich.....	1909
LANE, LAWTON W., 121 Franklin St., Lynn, Mass.....	1909
LANG, HERBERT, Amer. Mus. Nat. Hist., New York City.....	1907
LANGMAID, Miss BERTHA, 2 Gordon Terrace, Brookline, Mass.....	1908
LANTZ, Prof. DAVID ERNEST, Dept. of Agriculture, Washington, D. C.....	1885
LARRABEE, AUSTIN P., 548 Mathewson Ave., Wichita, Kan.....	1902
LATIMER, Miss CAROLINE P., 19 Pierrepont St., Brooklyn, N. Y.....	1898
LAURENT, PHILIP, 31 E. Mt. Airy Ave., Mt. Airy, Philadelphia, Pa....	1902
LAW, J. EUGENE, Hollywood, Cal.....	1907
LAWRENCE, JOHN B., 126 E. 30th St., New York City.....	1907
LEIBELSPERGER, WALTER H., Fleetwood, Pa.....	1907
LELANDE, H. J., 1320 E. 15th St., Los Angeles, Cal.....	1907
LEVEY, W. CHARLESWORTH, 53 Waverly St., Brookline, Mass.....	1908
LEWIS, Dr. FREDERIC T., Harvard Medical School, Boston, Mass....	1909
LINTON, CLARENCE B., 1754 Pine St., Long Beach, Cal.....	1908
LONG, WILLIAM B., 249 Tappan St., Brookline, Mass.....	1907
LOOMIS, JOHN A., Mereta, Texas.....	1887
LORD, Rev. WILLIAM R., Dover, Mass.....	1901
LOW, ETHELBERT T., 30 Broad St., New York City.....	1907
LUM, EDWARD H., Chatham, N. J.....	1904
LURVEY, SAMUEL A., Box 161, South West Harbor, Maine.....	1908

MACDOUGALL, GEORGE R., 131 W. 73rd St., New York City.....	1890
MACKIE, WM. C., 54 Coolidge St., Brookline, Mass.....	1908
MACLAY, MARK W., JR., 70 West 55th St., New York City.....	1905
MADDOCK, MISS EMELINE, The Belgravia, Philadelphia, Pa.....	1897
MAHER, J. E., Windsor Locks, Conn.....	1902
MAITLAND, ROBERT L., 141 Broadway, New York City.....	1889
MARBLE, RICHARD M., 7 Keiffer St., Brookline, Mass.....	1907
MARCH, Prof. JOHN LEWIS, Union College, Schenectady, N. Y.....	1903
MARRS, Mrs. KINGSMILL, Saxonville, Mass.....	1903
MARSDEN, H. W., Witch Creek, Cal.....	1904
MARSH, DANIEL J., Five Cent Savings Bank, Springfield, Mass.....	1894
MARTIN, Miss MARIA ROSS, Box 365, New Brunswick, N. J.....	1902
MARX, EDWARD J. F., 8 Chestnut Terrace, Easton, Pa.....	1907
MATHEWS, F. SCHUYLER, 17 Frost St., Cambridge, Mass.....	1908
McATEE, WALDO LEE, Dept. of Agriculture, Washington, D. C.....	1903
McCLINTOCK, NORMAN, 504 Amberson Ave., Pittsburgh, Pa.....	1900
McCONNELL, HARRY B., 142 E. Warren St., Cadiz, O.....	1904
McCOOK, PHILIP JAMES, 571 Park Ave., New York City.....	1895
McFARLAND, A. C., 1205 E. 60th St., Chicago, Ill.....	1909
McHATTON, Dr. HENRY, Macon, Ga.....	1898
McILHENNY, EDWARD AVERY, Avery Island, La.....	1894
McINTIRE, Mrs. HERBERT BRUCE, 4 Garden St., Cambridge, Mass....	1908
McKECHNIE, FREDERICK BRIDGHAM, Ponkapog, Mass.....	1900
McLAIN, ROBERT BAIRD, Market and 12th Sts., Wheeling, W. Va....	1893
McMILLAN, Mrs. GILBERT, Gorham, N. H.....	1902
MEAD, Mrs. E. M., 2465 Broadway, New York City.....	1904
MEEKER, JESSE C. A., 51 Washington Ave., Danbury, Conn.....	1899
MERRIAM, CHARLES, Weston, Mass.....	1908
MERRIAM, HENRY F., 94 New England Ave., Summit, N. J.....	1905
MERRILL, HARRY, Bangor, Maine.....	1883
MERSHON, W. B., Saginaw, Mich.....	1905
METCALF, WILLARD L., 33 West 67th St., New York City.....	1908
MILLER, CHAS. W., Shawnee-on-Delaware, Pa.....	1909
MILLER, JAMES HENRY, Lowville, N. Y.....	1904
MILLS, HARRY C., Box 218, Unionville, Conn.....	1897
MILLS, Prof. WILLIAM C., Ohio State Univ., Columbus, O.....	1900
MITCHELL, Dr. WALTON I., 321 Barnes Bldg., Wichita, Kan.....	1893
MOORE, Miss ELIZ. PUTNAM, 70 West 11th St., New York City.....	1905
MOORE, ROBERT THOMAS, W. Main St., Haddonfield, N. J.....	1898
MORCOM, G. FREAN, 1815 N. Raymond Ave., Pasadena, Cal.....	1886
MORGAN, ALBERT, 125 Trumbull St., Hartford, Conn.....	1903
MORSE, Miss MARGARET, Clark University, Worcester, Mass.....	1907
MOSHER, FRANKLIN H., 17 Highland Ave., Melrose, Mass.....	1905
MURPHEY, Dr. EUGENE E., 444 Tellfair St., Augusta, Ga.....	1903
MURPHY, ROBERT C., Brown Univ., Providence, R. I.....	1905
MUSGRAVE, JOHN K., 3516 Shady Ave., Allegheny, Pa.....	1909

MYERS, Mrs. HARRIET W., 306 Ave. 66, Los Angeles, Cal.	1906
MYERS, Miss LUCY F., Brookside, Poughkeepsie, N. Y.	1898
NASH, C. W., 94 Lee Ave., Toronto, Ontario.	1906
NASH, HERMAN W., Box 264, Pueblo, Colo.	1892
NELSON, EMORY E., 531 Grain Exchange, Winnipeg, Manitoba.	1908
NELSON, JAMES ALLEN, Bureau of Entomology, Washington, D. C.	1898
NEWHALL, DANIEL S., Strafford, Chester Co., Pa.	1908
NEWMAN, Rev. STEPHEN M., Hagerstown, Md.	1898
NICHOLS, JOHN M., 46 Spruce St., Portland, Me.	1890
NICHOLS, JOHN TREADWELL, 42 W. 11th St., New York City.	1901
NOLTE, Rev. FELIX, St. Benedict's College, Atchison, Kan.	1903
NORRIS, J. PARKER, Jr., care of Evening Bulletin, Philadelphia, Pa.	1904
NORRIS, ROY C., 301 North 18th St., Richmond, Ind.	1904
NOVY, FRANK ORIEL, 721 Forest Ave., Ann Arbor, Mich.	1909
NOWELL, JOHN ROWLAND, Box 979, Schenectady, N. Y.	1897
O'CONNOR, HALDEMAN, 25 N. Front St., Harrisburg, Pa.	1896
OGDEN, Dr. HENRY VINING, 436 Summit Ave., Milwaukee, Wis.	1897
OLDYS, HENRY, Dept. of Agriculture, Washington, D. C.	1896
*OLIVER, Dr. HENRY KEMBLE, 2 Newbury St., Boston, Mass.	1900
OVERTON, Dr. FRANK, Patchogue, N. Y.	1909
OWEN, Miss JULIETTE AMELIA, 306 N. 9th St., St. Joseph, Mo.	1897
PAINE, AUGUSTUS G., Jr., 18 West 49th St., New York City.	1886
PANGBURN, CLIFFORD H., 731 Elm St., New Haven, Conn.	1907
PARKER, Mrs. BENJAMIN W., 4 Hopestill St., Dorchester Centre, Mass.	1909
PARKER, Hon. HERBERT, S. Lancaster, Mass.	1904
PAUL, LUCIUS H., 59 West Miller St., Newark, New York.	1908
PEABODY, Rev. P. B., Blue Rapids, Kan.	1903
PEARSE, THEED, Ivy, Va.	1907
PEARSON, LEONARD S., 132 Beechtree Lane, Wayne, Pa.	1907
PEAVEY, ROBERT W., 791 Coney Island Ave., Brooklyn, N. Y.	1903
PECK, MORTON E., 513 N. High St., Salem, Oregon.	1909
PEET, MAX M., Alpha Kappa Kappa House, 1001 Huron St., Ann Arbor, Mich.	1907
PERRY, Dr. ELTON, 610 Baylor St., Austin, Tex.	1902
PERRY, HENRY JOSEPH, 636 Beacon St., Boston, Mass.	1909
PETERS, ALBERT S., State Bank, Lake Wilson, Minn.	1908
PETERS, JAMES LEE, Walnut Ave., Jamaica Plain, Mass.	1904
PHILIPP, PHILIP B., 51 West 85th St., New York City.	1907
PHILLIPS, ALEXANDER H., 54 Hodge Road, Princeton, N. J.	1891
PHILLIPS, George A., 27 Court St., Dedham, Mass.	1909
PHILLIPS, JOHN CHARLES, Wenham, Mass.	1904
PHILLIPS, SHERMAN E., Canterbury, N. H.	1904
PIERCE, A. K., Renovo, Pa.	1891
PILSBURY, FRANK O., 90 Main St., Walpole, Mass.	1909
PITCAIRN, WILLIAM G., 3330 Perrysville Ave., Allegheny, Pa.	1906
POE, Miss MARGARETTA, Ruxton, Baltimore Co., Md.	1899

POLLOCK, ADELAIDE L., Queen Anne School, Seattle, Wash.....	1906
POMEROY, HARRY KIRKLAND, Box 575, Kalamazoo, Mich.....	1894
POPE, ALEXANDER, 1013 Beacon St., Brookline, Mass.....	1908
PORTER, LOUIS H., Stamford, Conn.....	1893
PRAEGER, WILLIAM E., 421 Douglas Ave., Kalamazoo, Mich.....	1892
PRICE, ARTHUR E., Grant Park, Ill.....	1908
PRICE, JOHN HENRY, Crown W Ranch, Knowlton, Mont.....	1906
PURDY, JAMES B., R. F. D. No. 4, Plymouth, Mich.....	1893
RABORG, WM. A., Jr., 1608 Grand Ave., Kansas City, Mo.....	1909
RANKIN, CHAS. S. G., St. George's, Bermuda.....	1909
RAVEN, HENRY C., Bay Shore, N. Y.....	1908
RAWLE, FRANCIS W., Lock Box 51, Bryn Mawr, Pa.....	1907
RAWSON, CALVIN LUTHER, R. F. D. No. 2, Putnam, Conn.....	1885
READ, ALBERT M., 1140 15th St. N. W., Washington, D. C.....	1895
REAGH, DR. ARTHUR LINCOLN, 39 Maple St., West Roxbury, Mass...	1896
REDFIELD, ALFRED C., Wayne, Pa.....	1907
REDFIELD, Miss ELISA WHITNEY, 29 Everett St., Cambridge, Mass...	1897
REDINGTON, ALFRED POETT, Box 66, Santa Barbara, Cal.....	1890
REED, CHESTER A., 238 Main St., Worcester, Mass.....	1904
REED, Miss EMILY E., 12 Louisburg Sq., Boston, Mass.....	1904
REED, HUGH DANIEL, 108 Brandon Place, Ithaca, N. Y.....	1900
REED, Mrs. WILLIAM HOWELL, Belmont, Mass.....	1904
REHN, JAMES A. G., Acad. Nat. Sciences, Philadelphia, Pa.....	1901
REINBOLD, JOHN C., 576 Main St., Hackensack, N. J.....	1909
REMINGTON, CHARLES H., 216 Waterman Ave., East Providence, R. I.	1908
RHOADS, CHARLES J., Bryn Mawr, Pa.....	1895
RICHARDS, Miss HARRIET E., 36 Longwood Ave., Brookline, Mass...	1900
RICHARDSON, C. H., Jr., Stanford University, Cal.....	1903
RICHARDSON, JOHN KENDALL, Wellesley Hills, Mass.....	1896
RIDGWAY, JOHN L., Chevy Chase, Md.....	1890
RIKER, CLARENCE B., Maplewood, N. J.....	1885
ROBERTS, JOHN T., JR., 350 Main St., Buffalo, N. Y.....	1906
ROBERTS, WILLIAM ELY, 1935 Spring Garden St., Philadelphia, Pa...	1902
ROBINSON, ANTHONY W., 409 Chestnut St., Philadelphia, Pa.....	1903
ROBINSON, Dr. PHILIP E., 102 Huntington Ave., Boston, Mass.....	1908
RODDY, Prof. H. JUSTIN, State Normal School, Millersville, Pa.....	1891
ROE, CHARLES M., 252 Home Ave., Oak Park, Ill.....	1906
*ROGERS, CHARLES H., 5 W. 82d St., New York City.....	1904
ROLFE, ALFRED G., care of High School, Pottstown, Pa.....	1909
ROLFE, Mrs. PERCIVAL B., 98 State St., Portland Me.....	1909
ROOSEVELT, FRANKLIN DELANO, Hyde Park, N. Y.....	1896
ROSS, GEORGE H., 23 West St., Rutland, Vt.....	1904
ROSSIGNOL, GILBERT R., Jr., 2116 Bull St., Savannah, Ga.....	1909
ROWLEY JOHN, 2640 Haste St., Berkeley, Cal.....	1889
SAGE, HENRY M., Menands Road, Albany, N. Y.....	1885
SALLEY, FITZHUGH, Charleston Museum, Charleston, S. C.....	1907
SALTONSTALL, JOHN LEE, Beverly, Mass.....	1909

SANDS, AUSTIN LEDYARD, Greenough Place, Newport, R. I.	1902
SANFORD, HARRISON, 65 W. 50th St., New York City.	1905
SANFORD, Dr. LEONARD C., 216 Crown St., New Haven, Conn.	1902
SANTENS, JOSEPH A., Carnegie Museum, Pittsburgh, Pa.	1907
SASS, HERBERT RAVENEL, 23 Legare St., Charleston, S. C.	1906
SATTERTHWAIT, A. F., Office of State Zoölogist, Harrisburg, Pa.	1907
SAUNDERS, ARETAS A., care of Forest Service, Bozeman, Mont.	1907
SAUVOLA, AUGUSTUS E., Chassell, Mich.	1909
SAVAGE, JAMES, 1097 Ellicott Sq. Buffalo, N. Y.	1895
SAVAGE, WALTER GILES, Monteer, Mo.	1898
SCHANTZ, ORPHEUS M., Morton Park, Ill.	1907
SCHMUCKER, Dr. S. C., Rosedale Ave., West Chester, Pa.	1903
SCOTT, HENRY R., Framingham, Mass.	1909
SEABURY, JOSEPH S., Wellesley Hills, Mass.	1906
SEISS, COVINGTON FEW, 1338 Spring Garden St., Philadelphia, Pa.	1898
SHANNON, WM. PURDY, 1170 Broadway, New York City.	1908
SHARPLES, ROBERT P., West Chester, Pa.	1907
SHATTUCK, EDWIN HAROLD, Box 48, Granby, Conn.	1898
SHAW, WILLIAM T., 600 Linden Ave., Pullman, Wash.	1908
SHEARER, AMON R., Mont Belvieu, Tex.	1905
*SHERMAN, Miss ALTHEA R., National, Iowa.	1907
SHIRAS, GEORGE, 3d, Stoneleigh Court, Washington, D. C.	1907
SHOEMAKER, FRANK H., 2960 Dewey Ave. Omaha, Neb.	1895
SHORE, EDWIN W., 1 Daniels St., Pawtucket, R. I.	1909
SHROSBREE, GEORGE, Public Museum, Milwaukee, Wis.	1899
SHUMWAY, GEORGE, Galesburg, Ill.	1906
SILLIMAN, HARPER, 4 Gramercy Park, New York City.	1902
SINCLAIR, JOHN ABBOTT, New Hampton, N. H.	1909
SMITH, BYRON L., 2140 Prairie Ave., Chicago, Ill.	1906
SMITH, Rev. FRANCIS CURTIS, Boonville, N. Y.	1903
SMITH, Prof. FRANK, Univ. of Ill., Urbana, Ill.	1909
SMITH, HORACE G., Capitol Bldg., Denver, Colo.	1888
SMITH, Dr. HUGH M., 1209 M St. N. W., Washington, D. C.	1886
SMITH, JESSE L., 141 South 2nd St., Highland Park, Ill.	1907
SMITH, LOUIS IRVIN, Jr., 3809 Chestnut St., Philadelphia, Pa.	1901
SMITH, MYRTON T., 308 Pearl St., Hartford, Conn.	1909
SMITH, N. A. C., Wellesley Hills, Mass.	1907
SMITH, PHILO W., JR., Box 285, Eureka Springs, Ark.	1903
SMITH, Mrs. RUTH COOK, Woodcliffe Lake, N. J.	1909
SMITH, WILBUR F., 198 Ely Ave., South Norwalk, Conn.	1909
SMYTH, Prof. ELLISON A., Jr., Polytechnic Inst., Blacksburg, Va.	1892
SNYDER, WILL EDWIN, 109 E. Mackie St., Beaver Dam, Wis.	1895
SOULE, Mrs. ETTA RICH, 11 Centre St., Watertown, Mass.	1909
SPAULDING, FRED B., Lancaster, N. H.	1894
STANTON, Prof. J. Y., 410 Main St., Lewiston, Me.	1883
STANWOOD, Miss CORDELIA JOHNSON, Ellsworth, Me.	1909

STEBBINS, Miss FANNIE A., 480 Union St., Springfield, Mass.....	1903
STEELE, JOHN H., 4008 Spruce St., West Philadelphia, Pa.....	1906
STEPHENS, T. C., Morningside College, Sioux City, Iowa.....	1909
STEVENS, CAROLINE M., 52 Bowdoin St., Portland, Me.....	1906
STEVENS, Dr. J. F., 304 Funke Bldg., Lincoln, Neb.....	1908
STILES, EDGAR C., 345 Main St., West Haven, Conn.....	1907
STOKES, ERNEST M., Minesing, Ontario.....	1909
STONE, CLARENCE F., Branchport, N. Y.....	1903
STONE, NATHAN F., Shrewsbury, Mass.....	1908
STRATTON-PORTER, Mrs. GENE, Limberlost Cabin, Geneva, Ind.....	1906
STRECKER, JOHN KERN, Jr., Baylor Univ., Waco, Texas.....	1909
STREET, J. FLETCHER, Beverly, N. J.....	1908
STURTEVANT, EDWARD, St. George's School, Newport, R. I.....	1896
STYER, Mrs. KATHARINE R., Concordville, Pa.....	1903
SURFACE, Prof. HARVEY ADAM, State Zoölogist, Harrisburg, Pa.....	1897
SWAIN, JOHN MERTON, Box 142, Farmington, Me.....	1899
SWEENEY, Z. T., Columbus, Indiana.....	1909
SWENK, MYRON H., 3028 Start Street, Lincoln, Neb.....	1904
SWEZEY, GEORGE, 61 Polk St., Newark, N. J.....	1901
SWIFT, CARLETON B., St. Mark's School, Southborough, Mass.....	1907
TAYLOR, ALEXANDER R., 1410 Washington St., Columbia, S. C.....	1907
TAYLOR, ALEXANDER O'DRISCOLL, 132 Bellevue Ave., Newport, R. I.....	1888
TAYLOR, THORNE C., Hubbard Woods, Ill.....	1908
TERRILL, LEWIS McI., 352 Elm Ave., Westmount, Quebec.....	1907
TEST, CHARLES DARWIN, Golden, Colo.....	1906
TEST, Dr. FREDERICK CLEVELAND, 4318 Grand Boulevard Chicago, Ill.....	1892
TEST, LOUIS AGASSIZ, Rolla, Mo.....	1908
THOMAS, Miss EMILY HINDS, 2000 Spruce St., Philadelphia, Pa.....	1901
THOMPSON, CHAS. S., San Bernardino, Cal.....	1909
THOMPSON, ROY, University, N. D.....	1905
THORNE, SAMUEL, 914 5th Ave., New York City.....	1908
TINKER, ALMERIN D., 631 S. 12th St., Ann Arbor, Mich.....	1907
TOPPAN, GEORGE L., 723 11th St. N. W., Washington, D. C.....	1886
TOWER, Mrs. KATE DENIG, Hotel Bristol, Boston, Mass.....	1908
TOWNSEND, WILMOT, 272 75th St., Brooklyn, N. Y.....	1894
TREGANZA, A. O., 610 Utah Saving's & Trust Bldg., Salt Lake City, Utah.....	1906
TRIPPE, THOMAS M., Howardsville, Colo.....	1909
TROTTER, WILLIAM HENRY, 36 N. Front St., Philadelphia, Pa.....	1899
TRUMBULL, J. H., Plainville, Conn.....	1907
TUBBS, Prof. FRANK Dean, 129 Wood St., Lewiston, Me.....	1909
TUCKER, Dr. HENRY, 2000 Pine St., Philadelphia, Pa.....	1907
TUDBURY, WARREN C., 127 N. Pearl St., Buffalo, N. Y.....	1903
TUFTS, Le ROY MELVILLE, Thrushwood, Farmington, Me.....	1903
TUTTLE, Dr. ALBERT H., 350 Charles River Road, Cambridge, Mass.....	1908

TUTTLE, Dr. CARL, Berlin Heights, Ohio.....	1890
TUTTLE, HENRY EMERSON, Lake Forest, Ill.....	1909
TWEEDY, EDGAR, 13 Fairview Ave., Danbury, Conn.....	1902
ULRICH, ALBERT GEORGE, 3307 Washington Ave., St. Louis, Mo.....	1909
UNDERWOOD, WILLIAM LYMAN, Mass. Inst. Technology, Boston, Mass.....	1900
UPHAM, MRS. WILLIAM H., 212 3rd Ave., Marshfield, Wis.....	1907
VALENTINE, Miss ANNA J., Bellefonte, Pa.....	1905
VALENTINE, Miss LUCY W., 2 Trowbridge Terrace, Cambridge, Mass.....	1908
VAN BEUREN, Miss LOUISE, 21 W. 14th St., New York City.....	1909
VAN CORTLANDT, Miss ANNE S., Croton-on-Hudson, N. Y.....	1885
VAN DEUSEN, Miss EDITH, 143 Sumner Ave., Newark, N. J.....	1907
VAN NAME, WILLARD GIBBS, 121 High St., New Haven, Conn.....	1900
VAN SANT, Miss ELIZABETH, 2960 Dewey Ave., Omaha, Neb.....	1896
VANTASSELL, F. L., 116 High St., Passaic, N. J.....	1907
VARICK, Mrs. WILLIAM REMSEN, 1015 Chestnut St., Manchester, N. H.....	1900
VETTER, Dr. CHARLES, 50 Central Park West, New York City.....	1898
VISHER, STEPHEN S., Univ. of Chicago, Chicago, Ill.....	1904
VON LINGERKE, JUSTUS, 349 Fifth Ave., New York City.....	1907
VON ROSSEM, ADRIAN, 223 N. Orange Grove, Pasadena, Cal.....	1908
VROOMAN, ISAAC H., Jr., 282 Hamilton St., Albany, N. Y.....	1908
WADSWORTH, CLARENCE S., 37 Washington St., Middletown, Conn.....	1906
WALES, EDWARD H., Hyde Park, N. Y.....	1896
WALES, Miss ELLA, 186 Columbia Road, Dorchester, Mass.....	1908
WALKER, GEO. R., R. D. No. 3, Murray, Utah.....	1909
WALKER, Dr. R. L., 355 Main Ave., Carnegie, Pa.....	1888
WALLACE, Dr. A. H., 204 Bellevue Ave., Upper Montclair, N. J.....	1907
WALLACE, JAMES S., 69 Front St., Toronto, Ontario.....	1907
WALTER, HERBERT E., Dr., 53 Arlington Ave., Providence, R. I.....	1901
WALTERS, FRANK, South Sandisfield, Mass.....	1902
WARD, FRANK HAWLEY, N. Y. State Museum, Albany, N. Y.....	1908
WARD, HENRY L., 882 Hackett Ave., Milwaukee, Wis.....	1906
WARD, Mrs. MARTHA E., 25 Arlington St., Lynn, Mass.....	1909
WARNER, GOODWIN, Pond St., Jamaica Plain, Mass.....	1908
WARREN, Dr. B. H., 236 W. Market St., West Chester, Pa.....	1885
WARREN, EDWARD ROYAL, 20 W. Caramillo St., Colorado Springs, Colo.....	1902
WEBER, J. A., Box 216, Palisades Park, N. J.....	1907
WEIR, J. ALDEN, 471 Park Ave., New York City.....	1899
WELLMAN, GORDON B., 54 Beltran St., Malden, Mass.....	1908
WELLS, FRANK S., 916 Grant Ave., Plainfield, N. J.....	1902
WENTWORTH, IRVING H., Matehuala, S. L. P., Mexico.....	1900
WESTON, FRANCIS M., Jr., care P. G. Porcher, Mt. Pleasant, S. C.....	1907
WETMORE, ALEXANDER, care of Museum, Lawrence, Kansas.....	1908
WETMORE, Mrs. EDMUND, 343 Lexington Ave., New York City.....	1902
WEYGANDT, CORNELIUS, Wissahickon Ave., Mt. Airy, Philadelphia, Pa.....	1907

WHARTON, WILLIAM P., Groton, Mass.....	1907
WHEELER, EDMUND JACOB, 177 Pequot Ave., New London, Conn....	1898
WHEELER, JOHN B., East Templeton, Mass.....	1897
WHEELOCK, MRS. IRENE G., 1040 Hinman Ave., Evanston, Ill.....	1902
WHITE, FRANCIS BEACH, St. Paul's School, Concord, N. H.....	1891
WHITE, GEORGE R., Dead Letter Office, Ottawa, Ontario.....	1903
WHITE, W. A., 158 Columbia Heights, Brooklyn, N. Y.....	1902
WHITEHEAD, ELY L., 712 Michigan Ave., Evanston, Ill.....	1908
WICKERSHAM, CORNELIUS W., Hastings 2, Cambridge, Mass.....	1902
WIKEL, HENRY H., Manual Training High School, Brooklyn, N. Y....	1909
WILBUR, ADDISON P., 60 Gibson St., Canandaigua, N. Y.....	1895
WILCOX, MISS ALICE W., 165 Prospect St., Providence, R. I.....	1908
WILCOX, DR. EMMA D., 307 W. 98th St., New York City.....	1905
WILCOX, T. FERDINAND, 115 W. 75th St., New York City.....	1895
WILDE, MARK L. C., 311 N. 5th St., Camden, N. J.....	1893
WILLARD, BERTEL G., Box 107, Millis, Mass.....	1906
WILLARD, FRANK C., Tombstone, Arizona.....	1909
WILLETT, VICTOR JOHN AUSTIN, Wydecombe, Whiteman's Creek, B. C.	1909
WILLIAMS, HARRY C., 2424 E. Colfax Ave., Denver, Colo.....	1908
WILLIAMS, J. BICKERTON, Biological Museum, Queen's Park, Toronto, Ontario.....	1889
WILLIAMS, RICHARD FERDINAND, Box 521, New York City.....	1902
WILLIAMS, ROBERT S., New York Botanical Gardens, Bronx Park, New York City.....	1888
WILLIAMS, ROBERT W., Jr., U. S. Dept. Agriculture, office of the Solicitor, Washington, D. C.....	1900
WILLIAMSON, E. B., Bluffton, Ind.....	1900
WILSON, SIDNEY S., German American Bank Bldg., St. Joseph, Mo....	1895
WINDLE, FRANCIS, 253 Dean St., West Chester, Pa.....	1909
WISLER, J. JAY, 231 Cherry St., Columbia, Pa.....	1903
WISTER, WILLIAM ROTCH, 505 Chestnut St., Philadelphia, Pa.....	1904
WITHERBEE, MRS F. B., 106 Berkeley St., West Newton, Mass.....	1906
WOOD, J. CLAIRE, 179 17th St., Detroit, Mich.....	1902
WOOD, NELSON R., Smithsonian Institution, Washington, D. C....	1895
WOOD, NORMAN A., University of Michigan, Ann Arbor, Mich.....	1904
WOODCOCK, ARTHUR ROY, Corvallis, Oregon.....	1901
WOODRUFF, FRANK M., Acad. Sciences, Chicago, Ill.....	1904
WOODRUFF, LEWIS B., 14 E. 68th St., New York City.....	1886
WORCESTER, MRS. ALFRED, Bacon St., Waltham, Mass.....	1908
WORTHINGTON, WILLIS W., Shelter Island Heights, N. Y.....	1889
WRIGHT, ALBERT H., 804 E. Seneca St., Ithaca, N. Y.....	1906
WRIGHT, MISS HARRIET H., 1637 Gratiot Ave., Saginaw, W. S., Mich.	1907
WRIGHT, HORACE WINSLOW, 107 Pinckney St., Boston, Mass.....	1902
WRIGHT, HOWARD W., 830 N. Orange Grove Ave., Pasadena, Cal....	1907
WRIGHT, SAMUEL, Conshohocken, Pa.....	1895
WYMAN, LUTHER E., R. R. No. 3, Nampa, Idaho.....	1907

YOUNG, JOHN A., Calder Villa, Bridge of Allan, Scotland.....	1907
YOUNG, MRS. WILLIAM A., 54 Temple St., West Newton, Mass.....	1907
ZAPPEY, WALTER R., 19 Norfolk St., Roslindale, Mass.....	1905
ZERRAHN, CARL OTTO, 106 Centre St., Milton, Mass.....	1904
ZIMMER, J. T., Univ. State Farm, Lincoln, Neb.....	1908

DECEASED MEMBERS.

FELLOWS.

	<i>Date of Death</i>
ALDRICH, CHARLES.....	March 8, 1908
BAIRD, SPENCER FULLERTON.....	Aug. 19, 1887
BENDIRE, CHARLES EMIL.....	Feb. 4, 1897
COUES, ELLIOTT.....	Dec. 25, 1899
GOSS, NATHANIEL STICKNEY.....	March 10, 1891
HOLDER, JOSEPH BASSETT.....	Feb. 28, 1888
JEFFRIES, JOHN AMORY.....	March 26, 1892
McILWRAITH, THOMAS.....	Jan. 31, 1903
MERRILL, JAMES CUSHING.....	Oct. 27, 1902
SENNETT, GEORGE BURRITT.....	March 18, 1900
TRUMBULL, GURDON.....	Dec. 28, 1903
WHEATON, JOHN MAYNARD.....	Jan. 28, 1887

HONORARY FELLOWS.

BLANFORD, WILLIAM THOMAS.....	June 23, 1905
BOCAGE, J. V. BARBOZA DU.....	July, 1908
BURMEISTER, HERMANN.....	May 1, 1892
CABANIS, JEAN.....	Feb. 20, 1906
GÄTKE, HEINRICH.....	Jan. 1, 1897
GIGLIOLI, HENRY HILLYER.....	Dec 14, 1909
GUNDLACH, JUAN.....	March 14, 1896
GURNEY, JOHN HENRY.....	April 20, 1890
HARTLAUB, GUSTAV.....	Nov. 20, 1900
HUXLEY, THOMAS HENRY.....	June 29, 1895
KRAUS, FERDINAND.....	Sept. 15, 1890
LAWRENCE, GEORGE NEWBOLD.....	Jan. 17, 1895
MILNE-EDWARDS, ALPHONSE.....	April 21, 1900
NEWTON, ALFRED.....	June 7, 1907
PARKER, WILLIAM KITCHEN.....	July 3, 1890
PELZELN, AUGUST VON.....	Sept. 2, 1891
SALVIN, OSBERT.....	June 1, 1898

SAUNDERS, HOWARD.....	Oct. 20, 1907
SCHLEGEL, HERMANN.....	Jan. 17, 1884
SEEBOHM, HENRY.....	Nov. 26, 1895
SHARPE, RICHARD BOWDLER.....	Dec. 25, 1909
TACZANOWSKI, LADISLAS.....	Jan. 17, 1890

CORRESPONDING FELLOWS.

ALTUM, C. A.....	Jan. 1, 1900
ANDERSON, JOHN.....	Aug. 16, 1900
BALDAMUS, EDUARD.....	Oct. 30, 1893
BLAKISTON, THOMAS WRIGHT.....	Oct. 15, 1891
BLASIUS, RUDOLPH.....	Sept. 21, 1907
BOGDANOW, MODEST NIKOLAEVICH.....	March 4, 1888
BRYANT, WALTER, E.....	May 21, 1905
BULLER, WALTER LAWRY.....	July 19, 1906
COOPER, JAMES GRAHAM.....	July 19, 1902
CORDEAUX, JOHN.....	Aug. 1, 1899
DAVID, ARMAND.....	Nov. 10, 1900
FATIO, VICTOR.....	March 19, 1906
HAAST, JULIUS VON.....	Aug. 15, 1887
HARGITT, EDWARD.....	March 19, 1895
HOLUB, EMIL.....	Feb. 21, 1902
HOMEYER, EUGEN FERDINAND VON.....	May 31, 1889
LAYARD, EDGAR LEOPOLD.....	Jan. 1, 1900
LEVERKÜHN, PAUL.....	Dec. 5, 1905
LYTTLETON, THOMAS, LORD LILFORD.....	June 17, 1896
MARSCHALL, AUGUST FRIEDRICH.....	Oct. 11, 1887
MALMGREN, ANDERS JOHAN.....	April 12, 1897
MIDDENDORFF, ALEXANDER THEODORE VON.....	Jan. 28, 1894
MOSJISOVICS, FELIX G. HERMANN AUGUST.....	Aug. 27, 1897
OUSTALET, EMILE.....	Oct. 23, 1905
PHILIPPI, R. A.....	Aug. — 1904
PREJEVALSKI, NICOLAS MICHAELOVICH.....	Oct. 20, 1887
PRENTISS, DANIEL WEBSTER.....	Nov. 19, 1899
PRYER, HARRY JAMES STOVIN.....	Feb. 17, 1888
RADDE, GUSTAV FERDINAND.....	— 1903
SCHRENCK, LEOPOLD VON.....	Jan. 20, 1894
SÉLEYS-LONGSCHAMPS, EDMOND DE.....	Dec. 11, 1900
SEVERTZOW, NICOLAI ALEKSEWICH.....	Feb. 8, 1885
STEVENSON, HENRY.....	Aug. 18, 1888
TRISTRAM, H. B.....	March 8, 1906
WHARTON, HENRY T.....	Sept. —, 1895
WOODHOUSE, SAMUEL W.....	Oct. 23, 1904

MEMBERS.

FANNIN, JOHN.....	June 20, 1904
JUDD, SYLVESTER DWIGHT.....	Oct. 22, 1905
RALPH, WILLIAM LeGRANGE.....	July 8, 1907

ASSOCIATES.

ADAMS, CHARLES F.....	May 20, 1893
ALLEN, CHARLES SLOVER.....	Oct. 15, 1893
ANTES, FRANK T.....	Feb. 6, 1907
ATKINS, HARMON ALBRO.....	May 19, 1885
AVERY, WILLIAM CUSHMAN.....	March 11, 1894
BAILEY, CHARLES E.....	—, 1905
BARLOW, CHESTER.....	Nov. 6, 1902
BAUR, GEORGE.....	June 25, 1898
BECKHAM, CHARLES WICKLIFFE.....	June 8, 1888
BILL, CHARLES.....	April —, 1897
BIRTWELL, FRANCIS JOSEPH.....	June 29, 1904
BOARDMAN, GEORGE AUGUSTUS.....	Jan. 11, 1901
BOLLES, FRANK.....	Jan. 10, 1894
BRACKETT, FOSTER H.....	Jan. 5, 1900
BREESE, WILLIAM LAWRENCE.....	Dec. 7, 1889
BRENINGER, GEORGE FRANK.....	Dec. 3, 1905
BRENNAN, CHARLES F.....	Mar. 21, 1907
BROKAW, LOUIS W.....	Sept. 3, 1897
BROWN, JOHN CLIFFORD.....	Jan. 16, 1901
BROWNE, FRANCIS CHARLES.....	Jan. 9, 1900
BROWNSON, W. H.....	Sept. 6, 1909
BURNETT, LEONARD E.....	March 16, 1904
CAIRNS, JOHN S.....	June 10, 1895
CALL, AUBREY BRENDON.....	Nov. 20, 1901
CAMPBELL, ROBERT ARGYLL.....	April —, 1897
CANFIELD, J. B.....	Feb. 18, 1904
CARLETON, CYRUS.....	Nov. 15, 1907
CARTER, EDWIN.....	— 1900
CARTER, ISABEL PADDOCK.....	Sept. 15, 1907
CHADBOURNE, MRS. ARTHUR PATTERSON.....	Oct. 4, 1908
CLARK, JOHN NATHANIEL.....	Jan. 13, 1903
COE, W. W.....	April 26, 1885
COLBURN, WILLIAM W.....	Oct. 17, 1899
COLLETT, ALONSO M.....	Aug. 22, 1902
CONANT, MRS. THOS. O.....	Dec. 28, 1907
CORNING, ERASTUS, Jr.....	April 9, 1893
DAFFIN, WM. H.....	April 21, 1902

Deceased Members.

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DAKIN, JOHN ALLEN.....	Feb. 21, 1900
DAVIS, WALTER R.....	April 8, 1907
DEXTER, NEWTON.....	July 27, 1901
DODGE, JULIAN MONTGOMERY.....	Nov. 23, 1909
ELLIOTT, SAMUEL LOWELL.....	Feb. 11, 1889
FAIRBANKS, FRANKLIN.....	April 24, 1895
FISHER, WM. HUBBELL.....	Oct. 6, 1909
FOWLER, JOSHUA LOUNSBURY.....	July 11, 1899
FULLER, CHARLES ANTHONY.....	Mar. 16, 1906
GESNER, ABRAHAM HERBERT.....	April 30, 1895
GOSS, BENJAMIN FRANKLIN.....	July 6, 1893
HATCH, JESSE MAURICE.....	May 1, 1898
HOADLEY, FREDERICK HODGES.....	Feb. 26, 1895
HOLMES, LARUE KLINGLE.....	May 10, 1906
HOOPES, JOSIAH.....	Jan. 16, 1904
HOWLAND, JOHN SNOWDON.....	Sept. 19, 1885
INGERSOLL, JOSEPH CARLETON.....	Oct. 2, 1898
JENKS, JOHN WHIPPLE POTTER.....	Sept. 27, 1894
JESURUN, MORTIMER.....	March —, 1905
JOUY, PIERRE LOUIS.....	March 22, 1894
KELKER, WM. A.....	Feb. 15, 1908
KNIGHT, WILBUR CLINTON.....	July 8, 1903
KNOX, JOHN C.....	July 9, 1904
KNOX, JOHN COWING.....	June 1, 1904
KOCH, AUGUST.....	Feb. 15, 1907
KUMLIEN, LUDWIG.....	Dec. 4, 1902
KUMLIEN, THURE.....	Aug. 5, 1888
LAWRENCE, ROBERT HOE.....	April 27, 1897
LEE, LESLIE ALEXANDER.....	May 20, 1908
LINDEN, CHARLES.....	Feb. 3, 1888
LLOYD, ANDREW JAMES.....	June 14, 1906
MABBETT, GIDEON.....	Aug. 15, 1900
MAITLAND, ALEXANDER.....	Oct. 25, 1907
MARBLE, CHARLES C.....	Sept. 25, 1900
MARCY, OLIVER.....	March 19, 1899
MARIS, WILLARD LORRAINE.....	Dec. 11, 1895
McEWEN, DANIEL C.....	Nov. 1, 1909
McKINLAY, JAMES.....	Nov. 1, 1899
MEAD, GEORGE SMITH.....	June 19, 1901
MINOT, HENRY DAVIS.....	Nov. 13, 1890
MORRELL, CLARENCE HENRY.....	July 15, 1902
NICHOLS, HOWARD GARDNER.....	June 23, 1896
NIMS, LEE.....	March 12, 1903
NORTHROP, JOHN I.....	June 26, 1891
PADDOCK, ISABEL M.....	Sept. 15, 1907
PARK, AUSTIN F.....	Sept. 22, 1893

PAULMIER, FREDERICK CLARK.....	March 3, 1906
POMROY, GRACE V.....	May 14, 1906
RAGSDALE, GEORGE HENRY.....	March 25, 1895
READY, GEORGE H.....	March 20, 1903
RICHARDSON, JENNESS.....	June 24, 1893
ROBINS, MRS. EDWARD.....	July 2, 1906
SAND, ISABELLA LOW.....	April 20, 1906
SELOUS, PERCY SHERBORN.....	April 7, 1900
SLATER, JAMES H.....	Feb. —, 1895
SLEVIN, THOMAS EDWARDS.....	Dec. 23, 1902
SMALL, EDGAR ALBERT.....	April 24, 1884
SMITH, CLARENCE ALBERT.....	May 6, 1896
SNOW, FRANCIS HUNTINGTON.....	Sept. 20, 1908
SOUTHWICK, JAMES MORTIMER.....	June 3, 1904
STOWE, W. H.....	March—, 1895
SWEIGER, MRS. J. L.....	March 23, 1907
THOMPSON, MILLET T.....	Aug. 7, 1907
THORNE, PLATTE MARVIN.....	March 16, 1897
THURBER, EUGENE CARLETON.....	Sept. 6, 1896
VENNOR, HENRY GEORGE.....	June 8, 1884
WATERS, EDWARD STANLEY.....	Dec. 26, 1902
WILLARD, SAMUEL WELLS.....	May 24, 1887
WOOD, WILLIAM.....	Aug. 9, 1885
WOODRUFF, EDWARD SEYMOUR.....	Jan. 15, 1909
WORTHEN, CHARLES K.....	May 27, 1909
YOUNG CURTIS CLAY.....	July 30, 1902

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Vol. XXXV

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ISLANDS AT WATCHSHOO, LABRADOR. NESTING SITES FOR GREAT BLACK-BACKED GULLS AND EIDERS.



PIASHTE-BAI RIVER AND LAKE, FROM BEGINNING OF HIGH LAND.

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ADDITIONAL NOTES ON THE BIRDS OF LABRADOR.¹

BY CHARLES W. TOWNSEND, M. D., AND A. C. BENT.

Plates I-III.

THE following notes are intended to supplement the 'Birds of Labrador'² published in 1907. They are the result of an ornithological excursion to the southern Labrador coast in the spring of 1909.

The itinerary was as follows: Leaving Quebec on the mail steamship on May 21, 1909, we reached the beginning of the Labrador Peninsula on May 23, some 345 miles from Quebec and 30 miles to the west of Seven Islands. This point is where the 50th parallel strikes the coast in the Gulf of St. Lawrence. From here, stopping at a few places, we skirted the coast as far as Esquimaux Point, where we left the steamer on May 24. The next day we started in a small sail boat and cruised for a week along the coast and among the islands to the eastward as far as Natashquan, about 85 miles from Esquimaux Point and some 255 miles from the westernmost point on the coast of the Labrador Peninsula. On this trip we landed and explored at Betchewun, Isles des Corneilles, Piashte-bai where we ascended the river five or six miles to the falls, Great Piashte-bai, Quatachoo and Watcheeshoo. We spent two days at Natashquan and returned by steamer on the night

¹ Read before the Nuttall Ornithological Club, November 1, 1909.

² Birds of Labrador. By Charles W. Townsend, M. D. and Glover M. Allen. Proc. Boston Soc. Nat. Hist., Vol. 33, No. 7, pp. 277-428, pl. 29. Boston, July, 1907. See also Townsend, Labrador Notes, Auk, Vol. XXVI, p. 201, 1909.

of June 1-2 to Esquimaux Point, which we established as our headquarters until June 14, making a number of day trips on foot along the coast to the east and west to the distance of five or six miles, and inland the same distance to the Romaine River. We also explored Esquimaux Island and took a three days sailing trip to Bald Island near Betchewun. On June 14 we took the steamer to Mingan where we explored the surroundings, and ascended the Mingan River three miles to the beginning of the height of land, and traversed the Indian portage path back for a few miles. On June 21 we took the steamer for our return home passing the westernmost point of the Labrador Peninsula on June 22.

In the publication of the Boston Society of Natural History it was stated that the "arctic area extends in a narrowing strip along the entire east coast and on the south coast as far west as Mingan."¹ The latter part of this statement was based on previously published records, and we found it to be not quite accurate, for the coast to the eastward of Mingan in places as far as Natashquan is forested to the water's edge, as is also the case with the group of limestone Mingan Islands. East of the Mingan Islands, however, the islands are largely bare and arctic in appearance and flora, but we found no evidence of breeding arctic birds such as the Pipit and Horned Lark, so common in such localities further to the eastward. In fact, at Natashquan in the barren plains we found the only instance of breeding Horned Larks.

The continuation of the range of granitic Laurentian Mountains looms up to a height of 800 to 1200 feet as a forbidding barrier all along this coast at a distance back of 2 or 3 miles at Mingan to 30 or 40 miles at Natashquan; it is the beginning of the high land of the interior. To the eastward of the Moisie River it is largely bare of tree growth, and presents from a distance a typically arctic appearance. That it is not arctic, however, our short excursion inland at Mingan proved, for we found everywhere on these barren hills evidence of a former forest growth of considerable proportions in the shape of tree stumps and trunks, which although whitened by long exposure to the weather, showed in their crevices the charred and blackened signs of a previous fire. Mr. J. A. Wilson, the

¹ *Loc. cit.*, p. 282.

factor of the Hudson's Bay Company's Post at Mingan, told us that this was the result of a great fire which started at the Grand (Hamilton) River about forty years ago and swept the interior out to the shores of the Gulf where the fire front was over 100 miles wide. From the high land back of Mingan we could see some still higher land where there were patches of unbroken spruce forest, showing still more clearly the Hudsonian character of this country. All this of course explained the absence of such arctic breeding birds as the Pipit and Horned Lark. Between this high land and the sea the country consists of a succession of flat terraces, showing evidence of recent elevation above the sea, which are covered in places with spruce and fir forest, in places with extensive sphagnum bogs containing numerous small ponds. The whole region is dissected by rivers, some of which are of considerable size, and all at this season were pouring great quantities of dark brown water into the green waters of the Gulf. All are frequented by salmon which begin to ascend the rivers the second week of June. The more important of these rivers are the Ste. Marguerite, Moisie, Manitou, Shell Drake, Magpie, St. John, Mingan, Romaine, Corneille, Piashte-bai, Watcheeshoo, Nabesippi, Agwanus, Little Natashquan, and Natashquan.

In the high land these rivers form numerous rapids and falls, while in the coastal plains there are in places cuttings with high sand cliffs. Alders, paper birches and larches are common close to the water of the rivers, while the general forest consists chiefly of spruces,—the white, black and red,—and of balsam fir. A few mountain ashes and poplars also occur.

The vegetation of the bogs or barrens is similar to that of those described on the eastern coast.¹

Sandy beaches abound along this strip of the Labrador coast. These are in places backed by sand cliffs, which near Clearwater Point, six miles east of Esquimaux Point, attain to a height of over 100 feet. In other places, as to the west of the Hudson's Bay Company's Post at Mingan, and also near the mouth of the Natashquan River, there are extensive sand-dunes regions. At various places along the coast between Mingan and Betchewun there are

¹ *Loc. cit.*, p. 282.

gray limestone rocks, of which also the large group of Mingan Islands, from the Peroqueets on the west to St. G  nevieue Island on the east, are composed. These limestones are in horizontal strata and are carved by the sea into numerous shapes of pillars, mushrooms, arches and caverns.

The high land at the westerly entrance to the Bay of Seven Islands as well as the mountainous islands there, and the islands to the eastward of the Mingan Islands are composed of Laurentian gneisses and granites, as are also the coastal ranges of mountains already referred to. The larger Mingan Islands are forested and contain elevated barrens or bogs like the mainland.

The bird fauna of this region of Labrador we found to be chiefly Canadian with a considerable Hudsonian element and of some birds that are often found in the Alleghanian zone. The only element of arctic fauna that we found was, as already stated, a pair of breeding Northern Horned Larks at Natashquan. Horned Larks, Snow Buntings and Pipits were, however, found during the earlier part of our stay on the coast, but were evidently late migrants.

Of Hudsonian birds the following we found to be summer residents in this part of the Peninsula: Pigeon Hawk, Lincoln's Sparrow, Fox Sparrow, Wilson's Warbler, Ruby-crowned Kinglet, and Alice's Thrush. White-crowned and Tree Sparrows were migrants only to the west of Betchewun. Whether they remained to breed to the east of this point we do not know as we left that region on June 1 before the migration was finished. We saw a few White-winged Crossbills and Redpolls which were apparently wandering or migrating birds. Although some of the others are birds whose range includes the Hudsonian as well as the Canadian zones, such as the Spruce Grouse, Labrador Jay, Black-poll Warbler, Winter Wren and Hudsonian Chickadee, the majority are birds of the Canadian zone, while a few, although often found in the Canadian zone, are sometimes classed as birds of the Alleghanian zone, such as the Marsh Hawk, Belted Kingfisher, Northern Flicker, American Crow, Bluejay, Black-and-white and Black-throated Green Warblers, and Redstart.

While the American Eider, Great Black-backed Gull, Common Tern and Double-crested Cormorant still breed in considerable numbers along this strip of southern coast, it is evident that Puffins

and Razor-billed Auks are rapidly diminishing their breeding numbers, while Murres and Gannets, as far as we could discover, no longer breed there. At Bald Island we found about 150 pairs of Puffins breeding, and a very few pairs probably still breed at the Peroquet Islands. As far as we could discover, probably less than two dozen pairs of the formerly abundant Razor-billed Auk breed on this coast west of Natashquan.

The cause for this diminution is not far to seek: — Indians and fishermen visit the islands with pails and collect the eggs for food. They also shoot the breeding birds. Eiders that conceal their nests under the spruce bushes are able to resist longer this war of extermination, but near Mingan and Seven Islands, where there are Indian villages occupied by these people during June and July, the Eiders are diminished very greatly in numbers. We found Indians cruising and camping at various places along the coast and witnessed their depredations on the birds. Birds that lay their eggs in colonies are of course more easily exterminated by these practices. According to the latest government census, published in 1908, the Montagnais Indians distributed along this coast number 694 in all, distributed as follows: 76 at Natashquan, 241 at Mingan, and 377 at Seven Islands. They come out of the interior with their furs the last of May and in June, and return to the interior about the middle of August. Their stay on the coast embraces the whole breeding period of the water birds.

At Mingan we were particularly impressed with the scarcity of passerine birds, which may perhaps be due to the presence there of Indian boys and their numerous small mongrel dogs that range the country, and also to their cats. We found that nearly all the Indians along this coast travelled about with cats as wigwam pets,— a fashion they are said to have adopted only of late years. Between them all the birds have but a poor showing.

The absence of Ravens and Rusty Grackles and Pine Siskins, and the rarity of shore-birds generally, of Labrador Jays, Redpolls, Yellow-rumped Warblers, Hudsonian Chickadees, and Golden-crowned Kinglets appeared to us worthy of note.

Our short stay of four weeks in Labrador was so timed that we arrived before the leaf buds had opened, and before all the snow and the winter birds had gone, and we left as summer was well

under way, after the migrants had passed, and the last summer residents had arrived. The Labrador spring is brief!

The spring migration of water birds was from west to east along the coast with the exception of that of the Brant and probably of the Old Squaw which go north over the land.

The temperature was remarkably even. The minimum thermometer registered 32° Fah. several times at night during the first ten days of our stay. The average temperature at 6 A. M. from May 23 to June 3 inclusive was 42.5°, maximum 48°, minimum 36°. The average temperature at noon for these twelve days was 50.5°, maximum 58°, minimum 44°; the average temperature at 6 P. M. for these days was 46°, maximum 53°, minimum 38°. For the thirteen days June 4 to 16 inclusive the average at 6 A. M. was 45.5°, maximum 48°, minimum 38°; at noon, average 50.8°, maximum 62° (June 10), minimum 44°; at 6. P. M., average 47.6°, maximum 50°, minimum 45°. The breaking of the thermometer prevented records during the last six days of our stay, but there was apparently no marked change.

We added three species to the list of Labrador birds, namely, the Piping Plover, Blue Jay, and Black and white Warbler. We also observed several birds whose previous records were very deficient, such as the Pintail, Purple Sandpiper, Marsh Hawk, Kingbird, Black-throated Blue, Black-throated Green and Nashville Warblers, and Redstart.

We wish to thank all our friends on this coast for their kindness and assistance on the trip, particularly Mr. J. A. Wilson, factor of the Hudson's Bay Company's Post at Mingan, Dr. J. E. Tremblay, government physician at Esquimaux Point, Mr. Saltzman of Betchewun, and particularly Monsieur Johan Beetz of Piashte-bai. To the last named, who has spent thirteen years on the coast, we are greatly indebted for much accurate information about the birds, as well as for specimens and kind hospitality.

In the following annotated list those marked with an * are new to Labrador. For the convenience of future investigators we have given as many of the Indian and French vernacular names of the birds as we could obtain, for these two languages are practically the only ones spoken on this strip of coast.



NESTING HOLE OF PUFFIN.



NEST OF EIDER DUCK.

ANNOTATED LIST.

1. **Colymbus holboëlli.** HOLBOELL'S GREBE.— We saw a specimen of this bird in the collection of M. Johan Beetz taken at Piashte-bai. From all that we could learn Grebes are rare on this coast.

2. **Gavia immer.** LOON; "Huard" (Fr.); "Ournorg" (Ind.).— We saw this bird commonly along the coast; most of the birds were probably migrants although we frequently saw single birds flying back and forth from the interior where they may have been breeding. We did not, however, find any of their nests in any of the numerous ponds and pools we visited near the coast. On May 23, we counted about forty of these birds from the steamer between the mouths of the Moisie and Shelldrake rivers, and we observed about the same number fly east across the mouth of the Natashquan in the course of an hour on May 31. On June 3 we saw a flock of 12, followed by 8 stragglers, fly east through the sound at Esquimaux Point. The majority of the birds seen near at hand were in full adult plumage.

3. **Gavia stellata.** RED-THROATED LOON.— We found this loon much less common than the preceding species, although we saw a few at various points along the coast. As in the case of the Loon, we found no evidence of breeding, and we were told by the Indians and others that they breed far inland.

4. **Fratercula arctica.** PUFFIN; "Peroquet."— The only colony that we visited of these interesting birds was at Bald Island near Betchewun where we found about 150 pairs breeding in holes in the mellow soil of the island and under the limestone rocks. Most of the burrows investigated contained each a female and a fresh egg on the dates of our visits, June 8 and 9, but it seemed probable that many of the birds had not begun to breed. Certainly they were spending much time in courtship on the water.

As far as we could learn the only other colony left on this entire strip of Labrador coast to the westward of Natashquan is a very small one of a few pairs at the Peroquet Islands off Mingan; or, more strictly speaking, Long Point. We passed close to these islands both coming and going, but saw no Puffins near them.

5. **Cephus grylle.** BLACK GUILLEMOT; "Sea Pigeon"; "Pigeon."— This bird was not common along this coast. We saw about 36 between Moisie and Esquimaux Point on our journey east, but as we saw only one or two on our return, we concluded that the former were merely migrants. Between Esquimaux Point and Betchewun there were eight or ten birds and between the latter point and Natashquan we saw only about fifteen. The comparative scarcity of good breeding places would account for this rarity. The only place we found evidence of their breeding was at the limestone cliffs on the east end of Esquimaux Island, where we saw two or three birds fly out from about 30 feet up. In the latter part of May we saw two birds in the white winter plumage, many in partial

moult and others in full summer plumage. A male shot on June 5 at Esquimaux Point in mixed winter and summer plumage showed no evidence of breeding.

6. *Uria troille*. MURRE; "Murmette" (Fr.).—We saw nine Murres near Agwanus on May 30, either of this species or *U. lomvia*; they were, perhaps, migrating birds. At Betchewun we were shown by Mr. Saltzman a mounted specimen of an albino of this species that he had shot there the previous winter. Mr. J. Beetz showed us a similar specimen he had shot near Piashte-bai; both were of a uniform cream white color, with white breasts.

All the men with whom we talked along the coast as far east as Natashquan stated that no Murres bred there now, but that these birds were abundant in fall and winter. In the latter season they were often found bewildered or frozen in the woods and on the sea ice. We came upon numerous remains of Murres of both species along the shores.

7. *Alca torda*. RAZOR-BILLED AUK.—On May 29, we saw five birds of this species between Quatachoo and Watcheeshoo. On the following day near some rocky islands not far from Agwanus, we saw about 25 of these birds. On June 8 and 9 we visited Bald Island off Betchewun and counted 17 of these birds. They were flying about the island and swimming in the water near by in groups of half a dozen or more. They appeared to be courting. We found no eggs, and concluded that they had not begun to lay. The limestone cliffs of the island contained suitable ledges for their eggs, and we were told they bred there regularly. We were also told that a very few might still be found breeding on the Peroqueets off Mingan, but we saw none when we passed these islands.

8. *Stercorarius parasiticus*. PARASITIC JAEGER.—On June 21 we saw from the steamer near Long Point three Jaegers apparently of this species.

9. *Pagophila alba*. IVORY GULL.—We saw the wings of an immature bird of this species at Mr. Saltzman's house at Betchewun, and were told by him and M. Beetz that this species occurred on the coast in winter.

10. *Larus hyperboreus*. GLAUCOUS GULL.—We saw two of these birds near Seven Islands on May 23, one on May 25 between Esquimaux Point and Betchewun, and one near Quatachoo on May 29. These were either migrants or non-breeding birds, and were all apparently immature in the creamy white (Hutchins) plumage.

11. *Larus marinus*. GREAT BLACK-BACKED GULL; "Saddle-back"; "Le gros Goeland avec le dos noir" (Fr.).—Common summer resident; seen daily all along the coast, also over inland ponds and rivers which it visits from its breeding grounds on the coast. We found the nests of this species common on nearly all the small rocky islands visited to the eastward of Esquimaux Point, generally on the highest and most conspicuous place. On the bare rocks the nests were often bulky affairs made up of sticks, seaweed and grasses, while on the turf, they sometimes consisted of large cup-shaped depressions with elevated rims, made up only of the growing turf of grasses and mosses, without the addition of any extran-

eous material. These latter nests appeared to have been used in previous years. The nests were seldom over three or four in number on a single island, and often not more than one. They contained two or three eggs.

12. **Larus argentatus.** HERRING GULL.—Common summer resident all along the coast. Nearly all the birds seen were in full adult plumage; a mottled gray bird was rare: we saw large flocks on the islands and shore near Seven Islands, and were told that they bred there in great numbers. At Esquimaux Point they collected to the number of at least 2,000 along the flats to feed at low tide. We found several small colonies among the islands to the eastward of Esquimaux Point just beginning to lay eggs the last of May.

13. **Sterna caspia.** CASPIAN TERN.—The only previous records of this interesting bird are those of Audubon and Frazar. The latter found a colony of some two hundred pairs about twenty miles to the westward of Cape Whittle in 1884. At the mouth of the Natashquan River flying close to the sandy beach we both saw and satisfactorily identified a bird of this species on May 31. The bird was watched with glasses and we heard it scream but we unfortunately failed to secure it.

14. **Sterna hirundo.** COMMON TERN; "Stearine."—We found Terns abundant about the rocky islands between Watcheeshoo and Natashquan where they apparently bred. There were also fifteen or twenty pairs at Betchewun, at Esquimaux Point and at Mingan. The birds arrived at Esquimaux Point on June 3. All the terns identified were of this species.

15. **Sula bassana.** GANNET; "Margot" (Fr.).—On June 8, ten miles east of Esquimaux Point, we saw a Gannet in immature plumage flying west. M. Johan Beetz gave us an adult bird in the flesh that he shot on June 11 near Mingan. On June 21 we saw about 30 of these birds, all but one in adult plumage, between the Peroquet Islands and Magpie River, and we saw one the next morning near Seven Islands. We were told that although a few Gannets visited the Peroquet Island each year they had not bred there for fifteen years, a desertion that was predicted by Bryant as long ago as 1860. The last record is that of Lucas in 1887 who found "a few Gannets. . . in spite of the incessant persecution of the Indians who regularly make a clean sweep there."

16. **Phalacrocorax auritus.** DOUBLE-CRESTED CORMORANT; "Gagati-ship" (Ind.).—We observed three colonies of these birds, the only ones, as far as we could learn, in the region included. On May 26 at Seal Rocks off St. Genevieve Island we found at least 200 pairs nesting on a smooth rocky island of about an acre in extent. We counted 204 nests, including some not finished. Some of the nests were empty, others contained one, two, three, four and in a few cases five eggs. The nests were made of sticks carefully interlaced, forming in some cases structures of large size. Many were partially composed of fresh rock weed (*Fucus*) and in several we found green branches of fir or spruce. One appeared to be adorned with some gull feathers, and another with a long curling shaving. Large crabs also were not uncommon on or near the nests. The rocks and nests were thickly

bedaubed with the white excrement of the birds. The birds at this rock were all in full adult plumage, but we saw two or three birds on a rock about three miles off that appeared to be in immature plumage. At no place did we see any Common Cormorants.

On May 29 we visited a similar but smaller colony at Cormorant Isle off Watachoo and found 73 nests containing 170 eggs. On May 30 we sailed near a third colony on a rocky island off Agwanus of about the same size as the one at Cormorant Isle.

We saw single birds flying inland over the rivers at Piashte-bai and Rivière des Corneilles.

17. *Mergus americanus*. AMERICAN GOOSANDER.—On June 7 we saw 3 birds of this species flying by Eskimo Island. They were probably late migrants. M. J. Beetz told us that this species occurred in the open water of the rapids of the Piashte-bai River in winter.

18. *Mergus serrator*. RED-BREASTED MERGANSER; "Bec-scie" (Fr.); "Oushuk" (In.).—We found this bird common along the coast, generally in small flocks and not in pairs.

19. *Anas rubripes*. RED-LEGGED BLACK DUCK.—Common in pairs along the coast and in the ponds.

20. *Dafila acuta*. PINTAIL.—We had a very satisfactory view of an adult male of this species as it flew from a pond in a bog back of Natashquan on June 1.

21. *Clangula clangula americana*. GOLDEN-EYE; "Plongeur" (Fr.).—We saw but very few of this species along the coast: two at Isle des Corneilles on May 28, four at Esquimaux Point on June 6, and one at the cliffs near Clearwater Point to the east of Esquimaux Point on June 10. Here on the edge of the sand cliffs over 100 feet high in an old birch stub overlooking the sea, we found the nest of this species containing 15 eggs. They were 12 feet from the ground in the stub 18 feet high.

22. *Clangula islandica*. BARROW'S GOLDEN-EYE.—We learned from Monsieur J. Beetz that this species occurred regularly only in winter in the open waters of the river at Piashte-bai, and he very kindly presented us with two specimens of adult males in the flesh, that he had shot in January of the previous winter at that place, and kept in cold storage.

23. *Harelda hyemalis*. OLD SQUAW; "Coe-caw-wee" (Ind.).—We saw Old Squaws on one day only, May 23, while we were steaming along the coast between May Island and the Shelldrake River. To the west of the Moisie River we saw only about a dozen, but to the east of the Moisie and between it and the Shelldrake we saw numerous flocks of 50 to 200 birds each, and from 1,000 to 1500 birds in all. These were either on the water or flying about high in the air either to the east or west. All appeared to be in full summer plumage. As we saw none after this further down the coast, we inferred that, like the Brant, the Old Squaw migrated north over land, and this surmise was confirmed by several natives with whom we talked. Mr. Saltzman said that very few went by Betchewun in the spring, although many flew by going to the west in the fall.

24. *Histrionicus histrionicus*. HARLEQUIN DUCK; "Canard des roches" (Fr.).— We were told by Monsieur Beetz that we might find some of these birds breeding at Quatachoo, and on May 29 we saw a flock of five of this species at that place and three more, full adults, at Watcheeshoo, but we found no evidence of breeding.

25. *Somateria dresseri*. EIDER; "Moynak" (Fr.); "Meship" (Ind.).— This was the most abundant and characteristic breeding duck along the coast, particularly at and to the eastward of Esquimaux Point. To the westward of this Point we saw many migrants on our arrival in May, but on our return in the latter part of June there were but few. Thus at Mingan on June 19 we saw 3 adult males and 30 in the brown plumage, and on June 22 at Seven Islands we saw four in the brown plumage and one partially moulted male. Nearly all the birds east of this point were in full adult plumage and generally in pairs, although we saw two or three flocks of 30 or 40 each made up of brown birds with one or two adult males. In walking around Esquimaux Island on June 3 we saw at least 500 of these birds on the rocks or in the water near by. Courting was continually in progress and the love note of the male, a loud and rather pleasing *ah-ou*, was frequently heard.

We found their nests abundant, especially on the smaller islands, such as the Isles des Corneilles. The nests were either in plain view or hidden amid the dead grass, or in crevices between the rocks or under the spruce bushes. While often close to the waters they were sometimes several yards back in the middle of the islands. At the islands at Watcheeshoo on May 29, we found about 25 nests in a few hours. The usual number of eggs was five or six, in one case seven; all the eggs collected were fresh.

It is evident that Indians and fishermen along the coast consume great quantities of the eggs of this valuable bird, and also shoot many of the birds during the breeding season. It is only a question of time before they are extirpated, as is practically the case now at Seven Islands and Mingan.

26. *Oidemia americana*. SCOTER; "Macreuse" (Fr.).— We saw Scoters in large numbers all along the coast; most of them were flying to the eastward, evidently on the spring migration. They became less common during the latter part of our stay, but even on June 22, near Seven Islands, we saw about 30 White-winged and 30 Surf Scoters. Although it is said that many spend the summer here, these are probably non-breeding birds for we found no evidence of their breeding. The Scoters were in flocks large and small and did not as a rule appear to be paired. At Esquimaux Point Scoters were seen daily flying east through the Sound sometimes in large numbers.

The Surf Scoter was by far the most common of the three species, the White-winged next, while the American Scoter was comparatively rare.

27. *Oidemia deglandi*. WHITE-WINGED SCOTER.— See *O. americana*.

28. *Oidemia perspicillata*. SURF SCOTER.— This, as already stated, we found the most common of the Scoters. On May 25, near Charles Island,

these birds appeared to be in pairs. An albino of this species, taken at Piashte-bai, was shown us by Monsieur Beetz.

29. *Branta canadensis*. CANADA GOOSE; "Outard" (Fr.); "Nisk" (Ind.). — We are glad to be able to correct the statement made in the 'Birds of Labrador' that this species "is now found breeding in the interior only or in the remote north and west" for we found a nest of the Canada Goose on a small hummock in the middle of a tiny lake in a bog two or three miles from the coast at Esquimaux Point on June 11. We also saw single birds and pairs in the bogs and flying back and forth from the coast at several points between Esquimaux Point and Natashquan, and we were told by M. Cyr of the former place that when inspecting the telegraph line that runs along the coast, he occasionally caught young geese, and he stated that he once found a nest in the latter part of May between Watcheeshoo and Pashasheeboo. M. Beetz confirmed these observations.

On May 27 we saw a flock of 28 Canada Geese, apparently migrants, feeding among the Isles des Corneilles, and on June 5, 17 flew north over the land back of Esquimaux Point.

30. *Branta bernicla glaucogaster*. BRANT; "Bernache" (Fr.); "Apes-tis" (Ind.). — We were told by Dr. Róss, the factor of the Hudson's Bay Company's Post at Seven Islands, and the statement was confirmed by several others, that the Brant came in thousands from the south the last of May, flying in between the islands and bedding in the inner bay. Between this date and the 15th or 20th of June they are constantly rising up and flying over the land in the direction of Hudson Bay. Mr. Charles Maloney of Mingan told us that a few were seen there in the spring flying west towards Seven Islands. Mr. Saltzman said he never saw any Brant at Betchewun. At Seven Islands the Brant are shot by the Indians and others as they fly by points, and are stalked in canoes concealed by blinds of grass or evergreen branches.

We saw none of these birds when we crossed the Bay of Seven Islands on May 23, and but one on our return on June 22, but we were told that a large migration took place in our absence.

This migration was described by Hind ¹ who observed Brant flying north over the land at the mouth of the Moisie River on June 10, 1861. He says: "From information derived on the spot, I learned that this bird is not seen much further eastward than Mingan, on the north shore of the gulf. They are found on all parts of the coast between Mingan and the Saguenay, where they arrive about April ² 20, and remain ten or twelve days. They go inland and breed on the upper lakes,³ or cross over to Hudson's Bay. They come from the interior, with the other species of geese, about September 15, remain about a month, then strike direct to the south shore of the St. Lawrence, or to the island of Anticosti, where they congregate in large numbers, before their winter flight towards the South."

¹ Henry Youle Hind, London, 1863, Vol. I, p. 17.

² This must be a mistake for May.

³ It is now known that they breed north of Lat. 83°.

31. **Lobipes lobatus.** NORTHERN PHALAROPE.—We saw only two birds of this species, one on May 25, an adult female, the other on June 8. Both were a short distance from the shore at Esquimaux Point. We saw none at any of the numerous pools and ponds visited.

32. **Gallinago delicata.** WILSON'S SNIBE; "La bécassine" (Fr.).—We found a wing of this species at Esquimaux Point.

33. **Arquatella maritima.** PURPLE SANDPIPER.—As the only previous record is that of Audubon it is interesting to record that on May 29 we saw three of these birds on an island at Quatachoo, and secured one. It was in full spring plumage showing the purple sheen on the back.

34. **Pisobia minutilla.** LEAST SANDPIPER.—We saw a few of these birds at several places along the coast and heard their flight song. We did not find it breeding, although we explored many suitable places.

35. **Ereunetes pusillus.** SEMIPALMATED SANDPIPER.—We saw several flocks of these sandpipers at various places but they were nowhere abundant. They were apparently migratory. Specimens of both of these small sandpipers were secured.

36. **Totanus melanoleucus.** GREATER YELLOW-LEGS; "Le Grand Chevalier a pieds jaunes" (Fr.).—Considering the number of good localities we saw surprisingly few of these birds, not more than eight or ten in all, along the entire coast. Four of these were on the main land near the Isles des Corneilles in a region that suggested the possibility of breeding.

37. **Helodromas solitarius.** SOLITARY SANDPIPER.—Only one was seen, and this on May 26 in a marsh near the Isle des Corneilles.

38. **Actitis macularia.** SPOTTED SANDPIPER.—Fairly common all along the shore, on the islands, and on the sandy shores of the rivers.

39. **Ægialitis semipalmata.** SEMIPALMATED PLOVER.—A flock of 25 migrants were seen at Esquimaux Point on June 3, and a few individuals at other places, the last on June 8 at Betchewun.

40.* **Ægialitis meloda.** PIPING PLOVER.—Two Piping Plovers were seen at Natashquan on May 31 on the long sandy beach. This is the first record for Labrador of this species.

41. **Canachites canadensis.** HUDSONIAN SPRUCE PARTRIDGE; "Perdrix de Savin" (Fr.); "Inino" (Ind.).—This bird appeared to be fairly common in the woods about Esquimaux Point; we secured three males and one female, and saw another male. At Mingan, although we saw none, we found recent tracks and a feather in a dusting place.

Near Charles Island on June 9 a set of eggs was brought in by a fisherman, which he had just found in the woods on the main land. He had nearly stepped on the bird and had crushed four out of the twelve fresh eggs with his foot.

42. **Bonasa umbellus togata.** CANADIAN RUFFED GROUSE; "Perdrix franc" (Fr.); Puspustis (Ind.).—A tail of this species decorated a house at Natashquan, and we were told by Mr. Saltzman that this bird occurred at Betchewun.

43. **Lagopus lagopus.** WILLOW PTARMIGAN; "Perdrix blanche"

(Fr.); "Wapino" (Ind.).—Monsieur Beetz gave us a specimen in the white plumage in the flesh taken at Piashte-bai in winter and kept in his cold storage plant. Both he and Mr. Saltzman and Mr. Wilson and others all agreed in the statement that this ptarmigan is abundant along the coast in the winter only every five or six years. This was the case last winter during which Mr. Saltzman killed 63. In the intermediate winters very few or none are seen, and they are not found in summer.

44. *Circus hudsonius*. MARSH HAWK.—A pair of these birds was seen on June 11 about two miles inland from Esquimaux Point, circling over the bog. Audubon's and Stearns's records are the only previous ones for this species.

45. *Accipiter atricapillus*. GOSHAWK.—We saw a mounted specimen of an immature bird of this species in the collection of M. Beetz. It was taken at Piashte-bai.

46. *Falco peregrinus anatum*. DUCK HAWK.—We found the remains of a Duck Hawk on Bald Island.

47. *Falco columbarius*. PIGEON HAWK.—We saw one or two birds of this species at nearly every place along the coast. At Esquimaux Island on June 3 we were attracted by the cackling notes of a Pigeon Hawk, and by following the notes found the nest in a thick clump of spruces. It was fourteen feet from the ground in a red spruce, and seemed to have been built in an old crow's nest that had also been used by squirrels. A thin fresh lining of lichens and small twigs had been added. At this date there were three eggs, and five when collected on June 7.

At the mouth of the Mingan River on June 17, we were similarly guided to another nest which contained four fresh eggs. This nest was 24 feet from the ground in a black spruce in a clearing. It appeared to be newly made of dead sticks, thickly lined with soft fine rootlets. The female was moulting from first winter into adult plumage. The male was in full adult plumage. Both birds contained White-throated Sparrows in their stomachs.

48. *Pandion haliaëtus carolinensis*. OSPREY.—Fish Hawks were common along the coast especially at the mouths of the rivers, where they apparently lived on trout. We were told by salmon fishers that they sometimes found the marks of their talons on salmon.

49. *Ceryle alcyon*. BELTED KINGFISHER.—We saw a Kingfisher on the little Natashquan River on June 1, and another on June 21 on the Mingan River.

50. *Colaptes auratus luteus*. NORTHERN FLICKER.—We saw two pairs of Flickers near the Isles des Corneilles and heard one at Mingan.

51. *Tyrannus tyrannus*. KINGBIRD.—As Audubon's is the only previous record for southern Labrador, it is interesting to note that we saw a Kingbird at Esquimaux Island on June 7, and perhaps the same bird in the village of Esquimaux Point on June 10.¹

¹ Hantzsch has recorded a specimen taken at Killinck July 1906, and another some years previously at Makkovik. (Journ. für Ornithologie, Vol. LVI, 1908, p. 379.)

52. *Empidonax flaviventris*. YELLOW-BELLIED FLYCATCHER.— There are numerous alder runs suitable for this flycatcher, but we saw none until June 10, when the first arrivals took place. After this it was very common.

53. *Otocoris alpestris*. HORNED LARK.— On our arrival at Esquimaux Point on May 24 we found this bird present in small flocks. We also saw about 6 of them in a marsh at the Isles des Corneilles on May 26. On June 1 on the plain back of Natashquan we found a pair which we secured whose actions suggested breeding. The female showed evidence of incubation. They were typical specimens of *alpestris*, not as much worn and the yellows not as faded as in the specimens taken in July and August, 1906, on the eastern coast. On our return to Esquimaux Point on June 2, the Larks previously found there had left.

54.* *Cyanocitta cristata*. BLUE JAY.— This bird has not been recorded for Labrador before. On June 20 we watched from our window at Mingan a Blue Jay on the nearby fence, and heard him call the next day. M. Beetz showed us a mounted specimen he had shot at Piashte-bai in January, 1907.

55. *Perisoreus canadensis nigricapillus*. LABRADOR JAY.— We regretted that we were unable to secure any specimens of this bird to determine its subspecific rank. Although it was said to be common and tame in autumn and winter, it was certainly rare and shy in summer. The only places we found it were Hunting Island and Mingan. At the former place on June 9 we obtained a distant view of a couple of these birds, but they disappeared when we attempted to follow them. At Mingan we heard its calls several times but only once obtained a fleeting glimpse of one.

56. *Corvus corax principalis*. RAVEN.— We saw not a single Raven on the coast, but were told that a pair usually bred on a cliff at Esquimaux Island, and we found the unoccupied nest.

57. *Corvus brachyrhynchos*. CROW.— The Crow is common along the coast. Several pairs appeared to be breeding on Mingan Island.

58. *Euphagus carolinus*. RUSTY BLACKBIRD.— Although there are numerous alder thickets along the coast, we saw no Rusty Blackbirds. We were told, however, by Charles Maloney of Mingan that this bird, of which he gave an accurate description, is common in flocks during the middle of May, but that they never stay to breed.

59. *Carpodacus purpureus*. PURPLE FINCH.— We saw only one Purple Finch in Labrador and this was on June 21 on the mountains back of Mingan. It was a full plumaged male and executed its flight song.

60. *Loxia leucoptera*. WHITE-WINGED CROSSBILL.— On June 21 we saw four of these birds flying about over the forest near the Mingan River.

61. *Acanthis* sp.? REDPOLL.— We saw two or three Redpolls at Esquimaux Point on May 24 and June 2.

62. *Plectrophenax nivalis*. SNOW BUNTING.— A few of these birds still lingered on the coast when we first arrived, and we obtained several specimens, the last on June 5, at Esquimaux Point.

63. *Passerculus sandwichensis savanna*. SAVANNAH SPARROW.— We found this bird commonly in pairs and in full song on the barren islands

the open bogs and natural meadows, and among the sand dunes, but nowhere abundant.

[*Note.* We looked carefully for Ipswich Sparrows in the extensive sand dunes at Natashquan and Mingan but failed to find any.]

64. *Zonotrichia leucophrys*. WHITE-CROWNED SPARROW.—On our arrival at Esquimaux Point on May 24, we found the White-crowned Sparrow common and in full song, and the same was the case everywhere along the coast to the eastward as far as Natashquan during our visits to these regions. We left Natashquan on June 1, and on our return to Esquimaux Point we found only a few birds there on June 2 and June 3, and none after that date. On visiting Betchewun and the intervening points again on the 8th, 9th and 10th of June none of this species were to be found. It is apparent therefore that the bird is a migrant only on the coast to the west of Betchewun, which is situated at the eastern end of the group of Mingan Islands; whether it breeds on the barren islands or on the shore beyond this point to Natashquan we do not know.

65. *Zonotrichia albicollis*. WHITE-THROATED SPARROW.—This was the most abundant sparrow on the coast during our entire stay, and was evidently breeding commonly.

66. *Spizella monticola*. TREE SPARROW.—We saw several Tree Sparrows at Betchewun and the Isles des Corneilles during the last of May, and one at Esquimaux Island on June 3. This was the last bird of the species seen.

67. *Junco hyemalis*. JUNCO.—We found this bird fairly common but never abundant in all suitable localities.

68. *Melospiza lincolni*. LINCOLN'S SPARROW.—This bird occurred in small numbers along the coast and was in song. It was always shy and difficult to observe.

69. *Melospiza georgiana*. SWAMP SPARROW.—A few Swamp Sparrows were found at Esquimaux Point and at Mingan. It was first seen at Esquimaux Point on June 4.

70. *Passerella iliaca*. FOX SPARROW.—Common all along the coast and in full song during our entire stay.

71. *Iridoprocne bicolor*. TREE SWALLOW.—A fairly common bird on this coast and seen from the first day of our arrival. On May 31 at the mouth of the Natashquan River we saw a migrating band of perhaps 75 of this species.

72. *Riparia riparia*. BANK SWALLOW.—A colony of about 30 pairs of Bank Swallows was found near Clearwater Point, six miles east of Esquimaux Point on June 10. Their nesting holes were just below the top of a sand cliff 125 feet high fronting the sea. A colony of perhaps half this size was found breeding at the sand cliffs of the Mingan River two miles from its mouth on June 21.

73.* *Mniotilta varia*. BLACK AND WHITE WARBLER.—We heard and saw this familiar warbler first at Piashte-bai River on May 28, and after that near Betchewun, at Esquimaux Point, and at Mingan. There are no previous records for this species for Labrador.



NEST OF PIGEON HAWK.



NEST OF PIGEON HAWK.

74. *Vermivora rubricapilla*. NASHVILLE WARBLER.—At Esquimaux Point on June 13 and again near the Mingan River on June 21 we heard the song of this bird. The birds were not seen. The only other record is that of Audubon who procured a few.

75. *Dendroica æstiva*. YELLOW WARBLER.—We shot an adult male of this species at Esquimaux Point on June 10, and saw another at that place on June 11. We found it common near the Mingan River on June 21.

76. *Dendroica cærulescens*. BLACK-THROATED BLUE WARBLER.—On June 20 at Mingan we saw at close range an adult male of this species. The finding of a dead bird by Audubon, "a victim to the severity of the climate," is the only previous record for Labrador.

77. *Dendroica coronata*. YELLOW-RUMPED WARBLER.—We saw a few of this species at various places along the coast in the earlier part of our visit from our arrival at Esquimaux Point on May 24, up to June 3; none after that date.

78. *Dendroica magnolia*. MAGNOLIA WARBLER.—We saw the first Magnolia Warbler at Esquimaux Point on June 4, after which it became very common wherever we went.

79. *Dendroica striata*. BLACK-POLL WARBLER.—We found this bird on our arrival at Esquimaux Point on May 24, and at all other points along the coast. On June 5 it became very abundant, and we counted 21 at Esquimaux Point in a walk not over a mile in length. It continued abundant during the remainder of our stay.

80. *Dendroica virens*. BLACK-THROATED GREEN WARBLER.—We found three of these birds on May 28 near the Piashte-bai River, two at Natashquan on May 31, one at Esquimaux Island on June 7, while at Mingan in the week of June 15 to 21 we found the bird common.

The only previous records are of one taken by Frazar at Esquimaux Point, and of two seen by Palmer at the Mingan Islands.

81. *Dendroica palmarum hypochrysea*. YELLOW PALM WARBLER.—We saw one bird of this species on May 31 at Natashquan, another in full song at Esquimaux Point on June 3.

82. *Seiurus noveboracensis*. WATER-THRUSH.—We observed one bird of this species at Natashquan on May 31, and another at Mingan on June 21.

83. *Geothlypis trichas*. MARYLAND YELLOW-THROAT.—A fairly common bird at Esquimaux Point and Mingan. The first bird was seen at Esquimaux Point on June 2.

84. *Wilsonia pusilla*. WILSON'S WARBLER.—A very common warbler, but not seen until June 4, when four appeared at Esquimaux Point. After this they were very common and in full song everywhere.

85. *Setophaga ruticilla*. REDSTART.—We saw and shot the first Redstart on Esquimaux Island on June 7. After that the bird was fairly common here and at Mingan. The previous records for Labrador are very scanty.

86. *Anthus rubescens*. PIPIT.—We found this bird in large flocks at Esquimaux Point from our arrival up to June 7, after which date no birds

were to be found. We also saw 6 at Betchewun on May 25 and a flock of at least 50 at Natashquan on May 31.

87. *Nannus hiemalis*. WINTER WREN.—At Esquimaux Point on June 4 we heard a Winter Wren singing, and saw one at a different locality there on June 13. We also heard one singing near the Mingan River on June 21.

88. *Penthestes hudsonicus*. HUDSONIAN CHICKADEE.—The only place we found these birds was at the Little Natashquan River where we saw a pair on June 1.

89. *Regulus satrapa*. GOLDEN-CROWNED KINGLET.—We saw one individual of this species at Natashquan on May 31, and another at Esquimaux Island on June 3.

90. *Regulus calendula*. RUBY-CROWNED KINGLETS.—A common bird everywhere, and its delightful song was constantly heard. We found it on the first day at Esquimaux Point.

91. *Hylocichla aliciae*. ALICE'S THRUSH.—At Esquimaux Point on June 2 we saw the first of this species, and a few after this. On June 13 we shot a female there with ovary slightly enlarged. A few were seen at Mingan supposedly of this species but they were not satisfactorily identified. We did not hear it sing.

92. *Hylocichla guttata pallasi*. HERMIT THRUSH.—A common bird and in full song on and after June 4.

93. *Planesticus migratorius*. ROBIN; "Le Merle" (Fr.).—Abundant during our entire stay, especially so on our arrival at Esquimaux Point on the afternoon of May 24, when there appeared to be numerous migrants of recent arrival. A nest containing a set of three eggs nearly ready to hatch was found and brought to us at Esquimaux Point on June 13.

ONE HUNDRED BREEDING BIRDS OF AN ILLINOIS
TEN-MILE RADIUS.

BY ISAAC E. HESS.

FOR two years past I have been gathering data on the breeding birds of Illinois, and only one who has attempted such a task can realize what a paucity of authentic records is obtainable from the ornithological literature of the State. This apparent neglect of our ornithologists in a State so resourceful, is responsible for my submitting the records of my twelve years' study of the birds making their homes in a small portion of Champaign County in east central Illinois. The records in this paper are all from a radius of ten miles, with my home village of Philo as the center of operations.

A short description of the geography of the locality will perhaps add to the value of the records. The fortieth parallel pierces our township latitudinally and divides the circle almost in halves. I have found the fortieth parallel the natural boundary line of several northern and southern species. Situated on the eastern edge of the great Illinois plain, we have an altitude of 750 feet.

Five miles to the east, Salt Fork Creek winds its way toward the Wabash and the Salt Fork timber follows the stream all the way. To the west two miles is the Embarras River (pronounced Ambraw), here only a small stream with head waters in this county. Five miles south an east branch joins the Embarras, forming at the juncture our only swamp. This is also the beginning of Bowse's Grove which follows the stream many miles southward.

Four miles southeast is upland Lynn Grove — 160 acres of natural timber, mainly walnut, elm and basswood — with no forest nor stream connection with the other timber belts. The region between is one vast sweep of rolling fields with scarcely an acre not under cultivation.

Groves and orchards abound about us and osage-orange hedges are common along our highways. In our fields may always be found such bird-life as the Bob-white, Prairie Chicken, Upland Plover, Killdeer, Meadowlark, Prairie Horned Lark, Dickcissel, Grasshopper Sparrow, Indigo Bunting, Song, Field and Vesper

Sparrows. The hedge-rows furnish homes for the Loggerhead Shrike, Brown Thrasher, Yellow-billed Cuckoo, Mourning Dove, Mockingbird, Crow, Goldfinch, Yellow Warbler and Traill's Flycatcher. The orchards attract the Baltimore and Orchard Orioles, Kingbird, Bronzed Grackle, Chipping Sparrow, Robin and Warbling Vireo. The Screech Owl and Sparrow Hawk nest in the town maples, country orchards and timber alike.

In upland Lynn Grove I have found 55 species nesting, but there is always missing the Ovenbird, Kentucky Warbler, Louisiana Water-Thrush, Redstart and Gnatcatcher of the low damp woods of Bowse's Grove and Salt Fork.

No choice is exhibited by such birds as the Whippoorwill, Towhee, Hummingbird, Carolina Wren, Wood Thrush, Yellow-breasted Chat, Scarlet Tanager and Yellow-throat, as I find them distributed in the three timbers.

Such woods birds as the Wood Pewee, Scarlet Tanager, Summer Tanager, Crested Flycatcher, Screech Owl and Cardinal, I have found nesting in the village.

Within this radius, which is really but nine miles in extent, and incloses the University of Illinois, I have evidence of the nesting of over 100 species. Of these ninety-four species are represented in my cabinet by complete sets of eggs, mostly with nests. Sixty of these I have photographed "in situ."

In presenting the spring arrival dates which I have included in most species, my own observations only are used. These are not to be taken as "standard," for undoubtedly many of the birds are here, at times, for days before my limited time in the field allows the opportunity of recording them. Particularly is this true of the forest species.

My record of the nesting of Bachman's Sparrow I believe to be among the northern-most. The Hooded Warbler and Summer Tanager are rare in this latitude, and I know of no other record of the nesting of the Lark Sparrow in eastern Illinois.

List of Species.

1. *Ardea herodias*. GREAT BLUE HERON.—Rather rare breeder because of the absence of swampy territory. Three pairs found breeding in Lynn Grove, May 30, 1897. The three nests were in a lofty honey-locust,

92, 95 and 105 feet from the ground. Two sets of four and one of five eggs were taken. Found them again present at the same place in 1907. Arrives April 1 to 18.

2. *Butorides virescens*. GREEN HERON.—Common summer resident; found both in timber and orchards near running streams. One nest of five eggs was found in an orchard one mile from town and three miles from open water. Earliest set, 5 eggs, May 21, 1905; latest, 4 eggs, June 17, 1897. Arrives April 4 to 12.

3. *Nycticorax nycticorax naevius*. BLACK-CROWNED NIGHT HERON.—A not uncommon summer resident but irregular as to distribution. Arrives April 20 to 28. Found first colony of 38 pairs breeding in Bowse's Grove, June 2, 1901. All contained young but one nest from which I took a set of four eggs. On May 12, 1902, the colony seemed much larger and I took two more sets of four eggs each. During the last four seasons they were breeding in smaller colonies of two and three pairs and were scattered among the maple groves along Embarras Creek. May 6, 1909, I found them nesting in Salt Fork bottoms.

4. *Rallus elegans*. KING RAIL.—Rare summer resident. Have always considered this rail as a migrant here because of a lack of suitable territory. This season, 1909, however, I found five pairs nesting and attribute its apparent absence during past seasons to my ignorance of its habits. My first nest of 11 eggs was located June 10, 1909, in a small swampy spot along the Wabash R. R. tracks one mile from town. On June 13, 1909, I found one nest of 10, one of 11, and two of 12 eggs in small ponds along the Embarras.

5. *Bartramia longicauda*. UPLAND PLOVER.—Common summer resident of our upland pastures, arriving March 28 to April 8. Earliest nesting date, four eggs, May 4, 1900. Latest four eggs, May 20, 1906. They often fly over the village on moonlight nights of early spring uttering their sharp alarm notes. We hear their long pleasing whistles at all hours of the day during April. On May 16, 1906, I found a nest of four eggs in a clover patch within the village corporation.

6. *Actitis macularia*. SPOTTED SANDPIPER.—Common summer resident along our smaller streams and open ditches. Arrives May 9 to 18. One nest of four eggs was taken May 30, 1905. This shore bird sometimes nests quite a distance from water.

7. *Oxyechus vociferus*. KILLDEER.—Common summer resident. Arrives March 7 to March 17. The male of one pair which returns to a tile factory pond in the village each season, spends the first three days after arrival flying over town repeating its clamorous notes. Like the Upland Plover, the Killdeer often flies on moonlight nights. They begin nesting shortly after arrival and I found eggs at the point of hatching April 16, 1898. During 1900, I found nests with fresh eggs on the dates April 30, May 23, June 1, June 8, and June 20. Corn-fields are the favorite sites for June nests and one at the edge of the village June 1, 1909, contained four eggs resting on a lining of small pebbles.

8. *Colinus virginianus*. BOB-WHITE.—Common resident. At times abundant. Just now slowly recovering from the devastation of the winter of 1902-1903. In the spring of 1903 whole coveys were found huddled together when the snows melted. They had burrowed in the snow drifts for shelter from the storms and were locked in their prison through a hard freeze following a sleet. Bob-white comes to the maples of the village to whistle each spring and fall. Earliest nesting, 20 eggs, May 16, 1899; latest, 16 eggs, July 18, 1909.

9. *Tympanuchus americanus*. PRAIRIE CHICKEN.—Common resident. Gaining a new lease of life as a direct result of our splendid game law, which has prohibited the killing of this grouse from 1902 to 1910. We hear the rolling boom of this splendid bird in every direction during the early spring months. February 11 is my earliest record of its notes while February 20 is the average date for 11 years.

Full sets number 12 to 17 eggs, and 13 eggs taken April 27, 1898, is my earliest set. May 29, 1901, a set of 13 eggs was taken in a small clover patch only 200 yards from our town park. This year I photographed a set of 13 eggs "in situ" not a third of a mile from the business district, and in June a Prairie Chicken flew the full length of one of our main streets only ten feet from the ground.

10. *Zenaidura macroura*. MOURNING DOVE.—Abundant summer resident, arriving March 4 to 15. Earliest nesting, 2 eggs, April 23, 1905; latest, 2 eggs, July 15, 1900. Nests in orchards and hedgerows, on stumps in timber, and often on the ground along the banks of open ditches.

11. *Cathartes aura septentrionalis*. TURKEY VULTURE.—Common summer resident. Arrives from the south April 2 to 18. Have found it nesting in logs, in hollow trees, twenty feet up in a dead stump, and six feet below the surface of the ground in the hollow of rotten stump. Earliest date for full set, two eggs, April 27, 1898, but a set of two eggs taken May 8, 1903, I consider nearest the real average date. Two eggs, taken June 25, 1905, is my latest date record. One female had to be lifted from her eggs.

12. *Accipiter cooperi*. COOPER'S HAWK.—Common summer resident. Common in timber but also nests in the maple groves on the farms. Earliest nesting, 4 eggs, April 21, 1903; latest, 4 eggs, June 1, 1900. Arrives in spring April 5 to 14. Not a winter resident here.

13. *Buteo borealis*. RED-TAILED HAWK.—Common resident. Entirely replaces *lineatus* in this locality. Nests in timber and groves alike and in isolated cottonwoods in fields. Earliest nesting, 2 eggs, March 21, 1900; latest, 2 eggs, May 12, 1908. Contrary to most published records, our Buteos do not deposit a second set in the old nest but always construct an entirely new nest. After losing the first set we may find the Red-tail covering the second set in a new nest 19 days later.

In my series of eight sets taken in seven years, one set is of three eggs and seven sets of two. All are heavily marked.

14. *Buteo swainsoni*. SWAINSON'S HAWK.—Rare summer resident, but seen each year. Dr. Jessee collected a set from this hawk in Lynn Grove

May 5, 1900. The nest was 65 feet up in an almost inaccessible position in an oak and contained three eggs. One captured and others seen have the pure white plumage with brown collar.

15. **Falco sparverius**, SPARROW HAWK.—Very common breeder, sometimes a resident. Nests in the timber and on the farms where it sometimes resorts to granaries and outbuildings. Is known here as a great enemy of the grasshoppers. May be seen perched upon telephone poles along our country roads. My earliest nesting record is 5 eggs taken May 2, 1905; latest, 5 eggs, May 27, 1900. First heard March 16 to 20.

16. **Aluco practicola**, BARN OWL.—Rare resident. My only record is a set of 5 eggs taken from an old ice-house in the village May 29, 1908. This year Mr. Guy Day found a nest of young in a hollow tree of Salt Fork timber. Date, May 20, 1909.

17. **Asio wilsonianus**, LONG-EARED OWL.—Rare resident. Have found this owl nesting only at Lynn Grove where I took the first set of 5 eggs from an old Crow nest April 23, 1901. April 18, 1905, I took a second set of 5 eggs in much the same situation.

18. **Strix varia**, BARRED OWL.—A not common nor rare resident but I was unable to find this owl nesting until April 26, 1908, when I took a set of 3 eggs from a hollow tree in Lynn Grove. This was undoubtedly a second set of the year, the first, probably an outside nest, destroyed by Crows which are abundant in this grove. On May 17, 1906, I captured a young of the year in the village.

19. **Otus asio**, SCREECH OWL.—Abundant resident. Nests in timber, old apple orchards on the farms and in the maple stubs of the village. For three seasons a pair has made their home in an old elm stub of my residence yard. Do not nest so early in my radius as they seem to from published records from other localities.

Typical sets consist of 5 eggs although I have taken two sets of 6. Earliest set of fresh eggs taken was a set of 5 on April 8, 1898. Latest date of fresh eggs was a set of 5 taken May 10, 1900. I find the brown phase only slightly in preponderance. Of 29 mated pairs noted during three seasons, 18 pairs were of opposite colorings, while seven pairs were of the brown phase and four pairs of the gray. A second set is very commonly deposited in the same nesting cavity, when the first is taken, with an average of thirty days intervening.

20. **Coccyzus americanus**, YELLOW-BILLED CUCKOO.—Common summer resident. Entirely replaces *erythrophthalmus* in this locality. This bird is a late breeder and inhabits woods, fields, and towns alike. Arrives May 7 to May 20. Earliest nesting, 3 eggs June 15, 1899. A remarkably late nest was located in a box elder of my residence yard in the village September 5, 1898. It was discovered when the leaves began to thin. The bird was setting on four incubated eggs but deserted them when the limbs became bare.

21. **Ceryle alcyon**, BELTED KINGFISHER.—Common summer resident, arriving March 24 to April 5. Found along all our smaller streams and

sometimes nesting up the dry runs. Earliest nesting, 5 eggs, May 6, 1897; latest, 7 eggs, May 31, 1908.

22. *Dryobates villosus*. HAIRY WOODPECKER.—Common resident of the woods but visits the village during the winter months. *Villosus* is our earliest nesting woodpecker and sits so closely on the eggs that rapping the tree will seldom flush the owner. After the young appear, however, the female is vigilant and it is difficult to surprise her on the nest. This habit makes the occupied nests difficult to locate until the brood is hatched. My earliest nesting record is 4 eggs, April 24, 1900. The female had to be lifted from her eggs. Latest record, 3 eggs, May 9, 1901.

23. *Dryobates pubescens medianus*. DOWNY WOODPECKER.—Common resident. Nests early in May and nesting cavities range from 3 to 60 feet from the ground. Most abundant in creek bottoms where the dead willows afford them easy excavating. Earliest nesting, 5 eggs, May 6, 1900; latest, 3 eggs, May 20, 1909.

24. *Centurus carolinus*. RED-BELLIED WOODPECKER.—Rather rare summer resident. Inhabits only the wilder timber bottoms. Although an extremely shy bird, I record from one to four pairs each season. My only set is of four eggs taken May 27, 1900. On May 20, 1908, I flushed one from her nest with one egg in a dead stump of Lynn Grove. Am not positive whether or not this woodpecker leaves during the winter months.

25. *Melanerpes erythrocephalus*. RED-HEADED WOODPECKER.—Common summer resident. Not nearly so numerous as in former years. The Redhead seems to be decreasing at about the same rate that the Flicker is increasing. Arrives April 5 to 10, but nests nearly a month later than the Flicker. Earliest nesting, 4 eggs, May 20, 1897; latest, 5 eggs, May 27, 1907.

26. *Colaptes auratus*. FLICKER.—An abundant and yearly increasing bird, a few remaining during the winter months. Begins nesting early in May and deposits seven to ten eggs. Earliest nesting, 8 eggs, May 2, 1898; latest, 9 eggs, May 17, 1901.

27. *Antrostomus vociferus*. WHIP-POOR-WILL.—Common summer resident. Arrives April 25 to May 1. Found only in the upland woods after their arrival from the south. Here they stay but a few days, leaving for the low damp woods for nesting. I have succeeded in finding but one set of eggs. This was a set of two taken May 16, 1901. A great deal has been written about this bird's night notes and the number of times they are repeated. At midnight on a moon-light night in May, 1905, I counted 175 repetitions of "whip-poor-will" before a pause was taken.

28. *Chætura pelagica*. CHIMNEY SWIFT.—Abundant summer resident. Arrives April 19 to 28. All leave at once for the south August 27 to September 5. The bulk now nest in chimneys although a number still stick to the primitive sites in the old hollow stumps in the forest. Earliest nesting, 5 eggs, June 5, 1902; latest, 4 eggs, June 22, 1907.

29. *Archilochus colubris*. RUBY-THROATED HUMMINGBIRD.—Common summer resident. Arrival is very regular, as following dates will show:

May 9, 1899; May 11, 1900; May 13, 1901; May 11, 1902; May 14, 1903; May 12, 1904; May 12, 1905; May 14, 1906; May 9, 1907; May 5, 1908; May 10, 1909. Is most abundant in swampy timber bottoms. Earliest nesting, two eggs, May 31, 1902; latest, two eggs, June 6, 1909. Probably ninety per cent of our hummers are nesting by June 4. Many stay in the fall until caught by the frosts. I have found them hanging quite dead in the vines after a sharp October night frost. Wisdom is shown in the spring by their late arrival, which fact convinces me that the late sojourners are young of the year.

30. **Tyrannus tyrannus.** KINGBIRD.—Common summer resident. Arrives April 24 to 30. In one year (1903) Kingbirds did not arrive until May 12. The Kingbird is present in every orchard but I have yet to see two pairs making their homes in the same orchard. Earliest nesting, 4 eggs, May 25, 1896; latest, 4 young, July 4, 1907. I have seen the Kingbird victor in every battle except one. In this dispute "Tyrannus" beat a hasty retreat from the onslaughts of an angry Yellow Warbler.

31. **Myiarchus crinitus.** CRESTED FLYCATCHER.—Common summer resident. An inhabitant of the woods and orchards near timber. The past four seasons a pair have made their home in the village. Arrives from the south April 26 to May 8. The typical nest contains a snake-skin. I have found but one nest without it. Earliest nesting, 4 eggs, May 25, 1899; latest, 4 eggs, June 18, 1901. Six eggs are most commonly deposited.

32. **Sayornis phoebe.** PHOEBE.—Common summer resident, arriving March 19 to April 10. Earliest nesting, 5 eggs, May 18, 1899; latest, 5 eggs, June 6, 1909. Each iron bridge over our streams shelters a pair of Phœbes each summer.

33. **Myiochanes virens.** WOOD PEWEE.—Common summer resident. Arrives April 2 to 22. Have found three nests of this woods loving flycatcher in the village. Of ten nests noted, each contained three eggs. Earliest nesting, 3 eggs, June 3, 1905; latest, 3 eggs, July 21, 1898.

34. **Empidonax virescens.** ACADIAN FLYCATCHER.—Summer resident. Inhabitant of the low damp woods only. Common only at Salt Fork timber. Have never seen this bird at Lynn Grove. Earliest nesting, 3 eggs, May 30, 1902; latest, 3 eggs, June 13, 1909. Nests of this species may always be recognized by the grasses hanging one to two feet below the nest.

35. **Empidonax trailli trailli.** TRAILL'S FLYCATCHER.—Common summer resident. Abundant in our hedge-rows and country orchards. Entirely replaces *alorum* in this locality. Contrary to its habits elsewhere, *trailli* is never seen in the woodlands here but is strictly a prairie bird. During eleven seasons of observing this bird, and examining two to twenty nests a season, I have never found a nest in a large or even medium sized tree. The smaller growths, averaging about fifteen feet high, are always chosen. Arrives May 12 to 20. Earliest nesting, 3 eggs, June 12, 1899; latest, 4 eggs, July 7, 1896.

36. **Otocoris alpestris praticola.** PRAIRIE HORNED LARK.—Abundant

resident. Nests earliest of our ground birds. Is often incubating surrounded by the snows of a late winter storm. After a good snow fall in March, the only dark spots showing on the white meadows are apt to be nests with setting Praticolas. First nests are placed in closely cropped pastures, sunken even with the surface and, woven solidly, are able to withstand the fierce March winds. The June nests are placed at the hills of corn and so loosely constructed that one as a whole could not be lifted from the ground. Earliest nesting, 3 eggs, March 15, 1898; latest, 4 eggs, July 6, 1896. Have found nests with fresh eggs on the widely separated dates, March 15, March 31, April 10, April 30, May 26, June 6, June 18, and July 6.

37. *Cyanocitta cristata*. BLUE JAY.— Abundant resident of the woods, village, and country orchards. Earliest nesting, 5 eggs, May 6, 1900; latest, 5 eggs, June 29, 1907.

38. *Corvus brachyrhynchos*. CROW.— Abundant resident. So numerous that 197 were killed in one day last December by two men. Nests in timber, farm orchards, hedges and in evergreens of the village cemetery. Earliest nesting, 5 eggs, April 2, 1899; latest, 6 eggs, May 11, 1899. Our Crows are developing into chicken and egg robbers far more exasperating than the Hawks.

39. *Molothrus ater*.—COWBIRD.— Abundant summer resident. I even find them imposing on the Yellow-throats in the swampy places. Have repeatedly found as many eggs belonging to the rightful owner lying on the ground under the nest as I have found Cowbird eggs in the nest. This has convinced me that every Cowbird egg deposited is at the expense of one songbird's egg. In several instances I have found the nesting bird incubating nothing but Cowbird's eggs. One Scarlet Tanager was covering four eggs of the Cowbird, while an Ovenbird was extremely anxious when I discovered her nest which contained seven eggs of the Cowbird and none of her own. Earliest eggs found May 10; latest, July 18.

40. *Agelaius phoeniceus*. RED-WINGED BLACKBIRD.— Common summer resident. Arrives March 17 to April 1. In 1904 the arrival date was February 29, which I regard as abnormal. Earliest nesting, 4 eggs, May 16, 1905; latest, July 17, 1898, 4 eggs. I once found a nest in a wild cherry tree within ten feet of a farm residence. It was one half mile from open water. (Description in Davies's 'Nests and Eggs.') Later nests are common in dry timothy fields in late July.

41. *Sturnella magna*. MEADOWLARK.— Abundant summer resident. Arrives March 2 to 11. Earliest nesting, 5 eggs, May 9, 1899; latest, 4 eggs, July 17, 1898.

42. *Icterus spurius*. ORCHARD ORIOLE.— Common summer resident. Arrive May 2 to 12. Earliest nesting, 4 eggs, May 18, 1896; latest, 4 young, July 4, 1900.

43. *Icterus galbula*. BALTIMORE ORIOLE.— Common summer resident. Arrives regularly April 22 to 29. Earliest nesting, 5 eggs, May 31, 1898; latest, 5 eggs, June 20, 1904.

44. *Quiscalus quiscula æneus*. BRONZED GRACKLE.— Abundant summer resident. Arrives Feb. 28 to March 7. Earliest nesting, 4 eggs, April 26, 1897; latest, 5 eggs, May 25, 1905.

45. *Astragalinus tristis*. GOLDFINCH.— Common resident. In full summer plumage by May 1. Earliest nesting, 6 eggs, July 14, 1896. Latest, 5 young, Sept. 10, 1902.

46. *Poecetes gramineus*. VESPER SPARROW.— Common summer resident. Arrives March 19 to April 1. Earliest nesting, 4 eggs, May 13, 1898; latest, 4 eggs, June 15, 1898.

47. *Coturniculus savannarum australis*. GRASSHOPPER SPARROW.— Abundant summer resident. Arrives April 23 to May 4. Earliest nesting, 5 eggs, May 27, 1898; latest, 5 eggs, June 6, 1901. Second nests are abundant in July in second growth clover.

48. *Chondestes grammacus*. LARK SPARROW.— Rare summer resident. Although I have observed this bird for three seasons, I have but one nesting record. On May 17, 1908, I found a nest of four fresh eggs in an oat field near Salt Fork Creek. Have also observed two pairs near Bowse's grove during 1909. I have found no other record of the nesting of *grammacus* in eastern Illinois.

49. *Spizella passerina*. CHIPPING SPARROW.— Rare summer resident. Formerly abundant. Arrives March 10 to 22. Earliest nesting, 4 eggs, May 8, 1898; latest, 4 eggs, May 20, 1896. The Chipping Sparrow is very likely to become extinct here unless it builds a more substantial nest, as each summer storm dislodges them from their foundations.

50. *Spizella pusilla*. FIELD SPARROW.— Abundant summer resident. Arrives March 19 to 31. Earliest nesting, 3 eggs, May 11, 1902; latest, 3 eggs, July 17, 1898.

51. *Melospiza melodia*. SONG SPARROW.— Abundant summer resident. Arrives Feb. 19 to March 10. Earliest record Feb. 10, 1907. Earliest nesting, 4 eggs, May 5, 1897; latest, 3 eggs, July 18, 1897.

52. *Peuceea æstivalis bachmani*. BACHMAN'S SPARROW.— Rare summer resident. The only breeding record I have of this sparrow is a nest and four eggs which I took May 31, 1896. This set was identified by both Dr. Ralph and Major Bendire and was in Bendire's hands at the time of his death. I have seen no more northern record of the nesting of *bachmani*.

53. *Melospiza georgiana*. SWAMP SPARROW.— Rare summer resident. Arrives April 2 to 10. Earliest nesting, 3 eggs, May 17, 1906; latest, 5 eggs, May 26, 1905. Of four nests found, each had an appendage or handle constructed of grass stems protruding from one side about three inches.

54. *Passer domesticus*. EUROPEAN HOUSE SPARROW.— Abundant resident. Nests from March to September. Numbers constantly increasing.

55. *Pipilo erythrophthalmus*. TOWHEE.— Common summer resident. Arrives March 14 to April 4. Earliest nesting, 3 eggs May 16, 1901; latest, 3 eggs, June 10, 1901. One remarkable nest was found seven feet

from the ground in a vine-covered sapling. Hogs were running wild in this piece of woods, which was the probable cause of this departure from regular habits.

56. *Cardinalis cardinalis*. CARDINAL.—Common resident. Often nests in the village. Earliest nesting, 3 eggs, May 22, 1906; latest, 3 eggs, June 16, 1898.

57. *Passerina cyanea*. INDIGO BUNTING.—Common summer resident. Arrives April 22 to May 9. A cosmopolitan bird, nesting in the woods, along country highways, open ditches, rail-road right of ways and berry patches in village. Earliest nesting, 4 eggs, May 25, 1896; latest, 3 eggs, Aug. 6, 1897.

58. *Zamelodia ludoviciana*. ROSE-BREADED GROSBEAK.—Common summer resident. Arrives April 23 to May 2. Earliest nesting, 4 eggs, May 18, 1902; latest, 4 eggs, May 26, 1905. The Rose-breast now nests regularly in the village and is famous as a potato-bug destroyer.

59. *Spiza americana*. DICKCISSEL.—Abundant summer resident. Arrives May 2 to 12. Nests on the ground in clover, from four to ten feet up in hedge-rows, in thistles and tall weeds. Earliest nesting, May 31, 1896, 5 eggs; latest, 4 eggs, Aug. 1, 1898. Probably our most rapidly increasing song bird.

60. *Piranga erythromelas*. SCARLET TANAGER.—Common summer resident. Arrives May 2 to 17. Earliest nesting, 3 eggs, May 22, 1896; latest, 4 eggs, June 4, 1907.

61. *Piranga rubra*. SUMMER TANAGER.—Rare summer resident. The only breeding record I have of this bird in this locality is a nest and three eggs taken June 2, 1909, in the village. This is the second pair I have seen here. I can find no more northern breeding record in Illinois.

62. *Progne subis*. PURPLE MARTIN.—Common summer resident. Arrives March 30 to April 6. Earliest nesting, 4 eggs, May 17, 1909; latest, 5 eggs, June 10, 1898.

63. *Petrochelidon lunifrons*. CLIFF SWALLOW.—Rare summer resident. Formerly a very abundant bird. Arrives April 22 to May 1. The only set I have collected in recent years was of four eggs taken June 19, 1908. In August, 1909, I saved two perfect nests from which young had flown. Back in the 80's I have seen boys with hats full of these eggs.

64. *Hirundo erythrogaster*. BARN SWALLOW.—Common summer resident though not so numerous as formerly. Arrives April 19 to 30. Earliest nesting, 5 eggs, June 13, 1899; latest, 4 eggs, July 2, 1906.

65. *Iridoprocne bicolor*. TREE SWALLOW.—Rare summer resident. The great bulk pass north. Earliest nesting, May 17, 1906, when I saw a pair building in a lofty oak snag; latest, 6 eggs, May 23, 1905. Arrives April 20 to 30. Migrates south in early September in great armies.

66. *Riparia riparia*. BANK SWALLOW.—Common summer resident. Arrives April 10 to 15. Earliest nesting, 5 eggs, May 18, 1905; latest, 6 eggs, June 7, 1908. This swallow prefers black dirt to sand banks in this locality.

67. *Stelgidopteryx serripennis*. ROUGH-WINGED SWALLOW.—Common summer resident. More abundant than commonly supposed. Have found it nesting along all our small streams. In each case I have caught one of the birds on the nest, which does not extend in to so great a depth as the nests of the Bank Swallows. The average length of the tunnel is only nine inches while the Bank Swallow burrows often to a depth of three feet. They do not nest in colonies like the Bank Swallows but are scattered in single or two or three pairs. Earliest nesting, 7 eggs, May 17, 1906; latest, 6 eggs, June 3, 1905.

68. *Lanius ludovicianus*. LOGGERHEAD SHRIKE.—Abundant summer resident. Arrives March 5 to 15. Our form is the true Loggerhead, *migrans* not having been recorded here. Earliest nesting, 6 eggs, April 12, 1898; latest, 6 eggs, June 3, 1907. The typical set is six although about one set in ten contains seven eggs. The uprooting of our hedge-rows is causing a noticeable reduction in the number of our nesting shrikes.

69. *Vireosylva olivacea*. RED-EYED VIREO.—Common summer resident. Arrives May 5 to May 9. Earliest nesting, 4 young, May 15, 1898; latest, 4 eggs, June 4, 1907. Unoccupied nests of this bird are common. I believe, through many years' observations, that they have the same habit as the Marsh Wrens — that of building extra nests.

70. *Vireosylva gilva*. WARBLING VIREO.—Common summer resident. Arrives May 2 to 10. Never seen in woodlands in this vicinity, occurring only in the village where it chooses the maple tree for its nests, and in the apple orchards on the farms. Common in the woods along Illinois River bottoms but habit reversed here. Earliest nesting, 4 eggs, June 1, 1905; latest, 4 eggs, June 19, 1898.

71. *Vireo griseus*. WHITE-EYED VIREO.—Not rare summer resident. I have found this vireo only in the Salt Fork timber where it arrives April 25 to May 4. My only nesting record is a nest and four eggs taken June 10, 1900.

72. *Vireo belli*. BELL'S VIREO.—Rare summer resident. Inhabits only the fruit farms where fruit trees and berry thickets abound. My only nesting record is a nest and four eggs taken July 4, 1899.

73. *Prothonotaria citrea*. PROTHONOTARY WARBLER.—Summer resident. Not rare but very local along our streams. Arrives May 10 to 19. Earliest nesting, 5 eggs, May 24, 1905; latest, 4 eggs, June 26, 1900.

74. *Dendroica aestiva*. YELLOW WARBLER.—Common summer resident. Arrives April 29 to May 12. Never seen in woods here. Inhabitant of orchards, hedge-rows along the highways, and occasionally nests in the village. In Putnam County, along the Illinois River, I found this warbler the most abundant breeder of the woodlands. This is another habit reversal which I cannot account for. Earliest nesting, 4 eggs, May 26, 1905; latest, 4 eggs, May 30, 1896.

75. *Seiurus aurocapillus*. OVENBIRD.—Common summer resident of the low damp woods only. Arrives April 30 to May 5. Earliest nesting, 5 eggs, May 16, 1901; latest, 4 eggs, May 22, 1903.

76. *Seiurus motacilla*. LOUISIANA WATER-THRUSH.—Rare summer resident. Arrives May 2 to 12. Have but two nesting records. Earliest, nest and 5 eggs, collected by Guy Day in Salt Fork bottoms May 30, 1906; latest, taken by me at same place, 5 eggs, June 9, 1907.

77. *Oporornis formosa*. KENTUCKY WARBLER.—Common summer resident. Inhabitant of our low damp woods only. Arrives May 2 to 10. Earliest nesting, 5 eggs, May 23, 1902; latest 5 eggs, June 6, 1909.

78. *Geothlypis trichas*. YELLOW-THROAT.—Abundant summer resident. Arrives April 30 to May 9. Nests in briar patches, along country roads, by open ditches, in woods, and extensively in swampy places. Nests difficult to find except in the swampy spots where they may be easily located in the bunches of dead swamp grass about six inches from the ground. In a small half-acre of swamp, I found in one hour seventeen nests of the Yellow-throat. Earliest nesting, 4 eggs, May 17, 1896; latest, 5 eggs, June 11, 1906.

79. *Icteria virens*. YELLOW-BREASTED CHAT.—Common summer resident. Inhabitant of briar thickets at edge of woods. Arrives May 9 to May 13. Earliest nesting, 4 eggs, May 30, 1902; latest, 4 eggs, June 17, 1900.

80. *Wilsonia mitrata*. HOODED WARBLER.—Rare summer resident. Arrives May 2 to 10. Although pairs of this bird are noted each season, my only nesting record is five eggs, taken May 30, 1897. This nest was placed in a small bush six inches from the ground.

81. *Setophaga ruticilla*. REDSTART.—Common summer resident. Found nesting, however, only in Salt Fork timber. Arrives April 27 to May 5. Earliest nesting, 4 eggs, May 24, 1901; latest, 4 eggs, June 4, 1908.

82. *Mimus polyglottos*. MOCKINGBIRD.—Common summer resident. Becoming more abundant each year. Arrives April 16 to 28. Earliest nesting, 5 eggs, May 18, 1902; latest, 4 eggs, July 4, 1897.

83. *Dumetella carolinensis*. CATBIRD.—Common summer resident. Arrives April 26 to May 2. Earliest nesting, 5 eggs, May 14, 1896; latest, 4 eggs, July 1, 1897.

84. *Toxostoma rufum*. BROWN THRASHER.—Abundant summer resident. Arrives March 23 to April 1. Earliest nesting, 4 eggs, May 2, 1898; latest, 5 eggs, June 7, 1899.

85. *Thryothorus ludovicianus*. CAROLINA WREN.—Common resident. Nests in all three timbers. Earliest nesting, 5 eggs, May 31, 1905; latest, 4 eggs, June 8, 1909. These records are most certainly second nests of the season, as I have seen young out of the nest in late April. Nests undoubtedly early in April.

86. *Thryomanes bewicki*. BEWICK'S WREN.—Rare summer resident. Arrives March 27 to April 5. Earliest nesting, 5 young, photographed in a paint keg, May 20, 1906; latest, 4 eggs, June 16, 1906.

87. *Troglodytes aëdon*. HOUSE WREN.—Abundant summer resident. Arrives April 10 to 20. Earliest nesting, 6 eggs, May 18, 1896; latest, 7 eggs, July 12, 1907.

88. *Sitta carolinensis*. WHITE-BREASTED NUTHATCH.—Common resident. Seen at all times during the year, yet I have found but one nest. This was taken at Lynn Grove April 28, 1901, and contained eight eggs. Troops of six to eight young are commonly seen by latter part of May.

89. *Baeolophus bicolor*. TUFTED TITMOUSE.—Common resident. Earliest nesting, 7 eggs, May 9, 1901; latest, 6 eggs, May 27, 1900. Comes to the village during winter months.

90. *Penthestes atricapillus*. CHICKADEE.—Common resident. Earliest nesting, 6 eggs, May 10, 1908; latest, 6 eggs, June 1, 1905.

91. *Poliophtila caerulea*. BLUE-GRAY GNATCATCHER.—Common summer resident. Arrives April 19 to 30. Earliest nesting, 3 eggs, May 19, 1905; latest, 5 eggs, May 22, 1906.

92. *Hylocichla mustelina*. WOOD THRUSH.—Common summer resident. Arrives April 24 to May 2. Earliest nesting, 3 eggs, May 18, 1902; latest, 4 eggs, June 6, 1909.

93. *Merula migratoria*. ROBIN.—Abundant summer resident. Sometimes seen through the winter months. Arrives Feb. 27 to March 4. Earliest nesting, 4 eggs, April 19, 1897; latest, 4 eggs, July 18, 1908.

94. *Sialia sialis*. BLUEBIRD.—Common summer resident. Arrives Feb. 28 to March 3. Earliest nesting, 6 eggs, April 23, 1905; latest, 4 eggs, May 26, 1908.

Additional Summer Residents.

I have evidence of the breeding of the following ten species but have not as yet secured a set of eggs.

95. *Aix sponsa*. WOOD DUCK.—Rare summer resident. On May 6, 1909, I found a female swimming in Salt Fork Creek that would not leave the vicinity. On May 18, 1904, I flushed three females and a male from the Embarras in Bowse's grove. I am confident from the dates that this bird occasionally nests with us.

96. *Porzana carolina*. SORA.—Not rare summer resident. Arrives April 20 to May 1. On June 30, 1909, young Soras were numerous in the Embarras swamp four miles south of the village. Nests here each year but I have been unable to locate the nest.

97. *Porzana jamaicensis*. BLACK RAIL.—Rare summer resident. In company with Dr. Jessee I found a nest of this rail in the Embarras swamp, May 30, 1901. The nest was at the edge of the swamp and had a roof, formed by grass stems broken over each other. Two eggs were in the nest; they were cream white with small reddish dots covering them sparsely. We both examined thoroughly the nest and eggs and left it for a complete set. Unfortunately a cow stepped into this rare home and deprived us of a full record.

98. *Philohela minor*. WOODCOCK.—Rather rare summer resident. On May 28, 1899, in Salt Fork timber, I flushed an old Woodcock and four young just able to fly. The young I could have easily caught. Since then

I have seen them each season but have never succeeded in locating a nest. This year (1909) I flushed a Woodcock on May 18. Last year a setting female was caught by a cat in our town park May 23 and sent to me by the owner of the cat.

99. **Circus hudsonius.** MARSH HAWK.—Rare resident. Seen here each year but the only nesting record I have is one shot off its nest on the ground near Lynn Grove, by Mr. Rush, a farmer, and eggs broken.

100. **Buteo platypterus.** BROAD-WINGED HAWK.—Not a rare summer resident. Seen each season at Lynn Grove and Salt Fork; kept one six months as a pet. Dr. Jessee had four young taken from a nest here. On May 5, 1909, I went to Salt Fork timber to collect a set from a nest which I located. I found one of the Broad-wings at the foot of the tree dead and the nest shot to pieces.

101. **Bubo virginianus.** GREAT HORNED OWL.—Rare resident. Have mounted four in eight years that were captured here. On May 16, 1906, I captured two young just able to fly in Salt Fork timber and a farmer showed me the tree in which they were hatched.

102. **Chordeiles virginianus.** NIGHTHAWK.—Common summer resident. Arrives April 29 to May 10. Fall flights begin August 30 to September 5. This bird nests with us each summer but I have not secured a set. A farmer plowed over a nest of two eggs in early June of last year but could not save them.

103. **Dolichonyx oryzivorus.** BOBOLINK.—Abundant migrant but rare summer resident. I have noted its presence during breeding months for five seasons. During May and June, 1909, two pairs made their homes in Maple Grove meadows three miles west. On May 27, 1909, I flushed a female from the timothy in Penmanfield at edge of village.

104. **Bombycilla cedrorum.** CEDAR WAXWING.—Rare summer resident. Common both north and south of this locality but very rare in this immediate vicinity. I saw a flock of 20 in Bowse's Grove June 26, 1906. Two young were shot in August, 1908, at Lynn Grove, which would seem to prove that they nested that year at least in the grove of pines at edge of timber.



From Biological Survey, U. S. Department of Agriculture.

NEST OF PALM-LEAF ORIOLE.

THE PALM-LEAF ORIOLE.

BY FLORENCE MERRIAM BAILEY.

Plates IV and V.

MAJOR BENDIRE, in his biography of *Icterus nelsoni* designates it as "the Arizona Hooded Oriole, also known in southern California as the 'Palm-leaf Oriole,'" and Coues in his fifth edition gives both names without comment. Major Bendire states that Mr. Walter E. Bryant when at Comodu, Lower California, found this oriole "nesting in the palm trees," and Mr. Brewster says that one of Mr. M. Abbott Frazar's Lower California nests was "attached to the underside of a palm leaf."¹

In southern California the growth of the birds' habit of nesting in fan palms seems to have paralleled the peoples' habit of planting fan palms in rows bordering their city streets, a habit frowned on by part of the population though persisted in, as a rebellious citizen complained, "to show the easterners that we can grow them here!" The palms are also used conspicuously as decorations for railroad station grounds — perhaps to preclude the possibility of escape from tropical impression — and noisy and unsuitable as the locations seem, oriole nests are sometimes found only a few yards from the tracks.

In eight towns and three country places in the general region between Redlands and San Diego in the summer of 1907 I counted forty nests made of palm fiber and hung in fan palms, and twelve others made of palm fiber and hung in other trees. This number doubtless represented but a small fraction of the actual nests in the places listed as they were noted largely in passing, sometimes while waiting for trains.

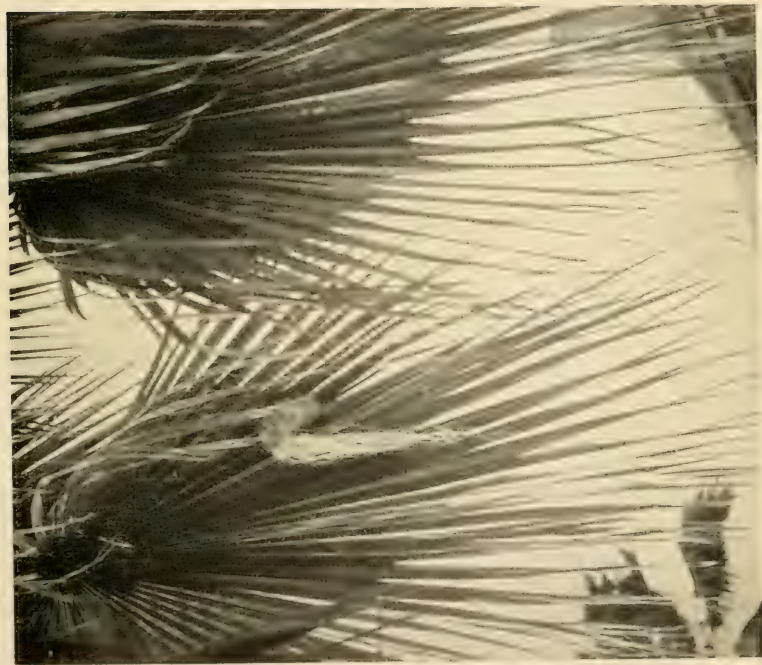
The great variety of palms used for decorative purposes in southern California gives the oriole a wide range of choice in nesting sites, but with one exception, that of a yucca-like palm in Santa Ana, the nests found were in the common native Washington fan

¹ Birds of the Cape Region of Lower California. By William Brewster. Bull. Mus. Comp. Zool. Harvard University, Vol. XLI, No. 1.

palm, or in one too nearly like it to be distinguished by the unbotanical. The wisdom of the choice is easily appreciated for the narrow leaves of the date palms offer no protection from the hot California sun while the wide leaves of the fan palms are natural umbrellas, and among fan palms the short-stemmed varieties with close-set leaves would give little of the breeziness given by this long-stemmed one whose leaves fan reasonably free of each other. The Washington palm in fact supplies at once three of man's inventions worked out from nature's patterns — the fan, the umbrella, and the fly or double roof. What better combination could a knowing bird take advantage of in a hot country? *Nelsoni* takes the fullest advantage of it, hanging his nest neither in the dome of the umbrella where there is the least breeze nor out on the fingers of the leaf where the sun comes in, but just above the fingers where there is not only shade but the most breeze.

In choosing between individual trees, the taller seem to be given the preference. At Corona where we found a palm fiber nest in a pepper tree, palms and peppers alternated down the street but the palms were not tall enough to raise their fans to a safe height. The largest number of nests found together were in two groups of particularly high palms. At Hemet, in the stately arc of high trees bordering the hotel grounds where a man on a ladder was sawing off the dead lower fans, eight nests were counted; and at the Cold Water Cañon hotel in the Santa Ana Mountains, in an assembly of venerable palms twenty to forty feet high, twenty-three were counted. At Hemet there would doubtless have been more nests had the palms not been trimmed. In Cold Water Cañon the twenty-three found were probably only a part of those actually there for although the old fans were left on the trees, they had drooped so low that even by walking around the trunk and looking up inside the leaves it was hard to find the nests.

Only a few occupied nests were seen as the orioles begin nesting in April and most of the nests enumerated were found in late July and August. The discrepancy in dates among the occupied nests accorded with Major Bendire's statement that "two and possibly even three broods are sometimes raised in a season. Under date of June 11, at Palm Springs, my notes read: "Attracted by the sibilant cries of young birds from a palm in front of the house I found *nelsoni* feeding young in a straw-colored ball of a nest under



From Biological Survey, U. S. Department of Agriculture.

FAN PALMS SHOWING HOODED ORIOLE'S NESTS.

a palm leaf made of palm fibers with strands dangling — with just head space above. Both birds were busy feeding. . . . Saw one perch picturesquely on the tip of an agave — the handsome yellow bird with the black face on the sage-colored agave." Under date of June 26, at Twin Oaks, I noted: "Several old nests are about the place, in oaks, umbrella tree and the one fan palm. There are two males about the house, one that perches on the windmill and one that, with his mate, is flying with streamers of palm fiber." The orioles were said to have built in this palm for several years but now disturbed by the presence of onlookers were gathering fiber to carry to another tree. On July 8, at San Diego, as we were passing a fan palm "on a lawn on Fifth Street," a handsome old male oriole almost flew into our faces as he dove in with food for the young. On July 23, in the hotel yard at Cold Water Cañon one oriole was seen feeding young and another starting to build. Here we were interested to find two old oriole nests occupied by linnets, the striped heads of the linnets looking amusingly out of place over the edge of the oriole's hanging basket. On July 29, at Hemet, the man who was trimming palms reported finding one nest with eggs and another with three young whose mother hung by the foot caught in the tangle of fibers depending from the nest.

The workman saved a fan with a nest for us, and the section containing the nest was brought east and photographed. The nest is supported on each side by fiber threads sewed through the leaf, and the nest itself, particularly the outer framework, intricately woven of the same fiber. The only lining is of finer threads.

The nest found in the pepper tree was not so dependent on strong sewing as that in the fan palm, for it was supported by the delicate twigs of the pepper sprays around which the fibers were securely bound. Palm fiber nests, besides this found in the pepper tree and those mentioned previously in oaks and umbrella trees, were seen and reported, one in a eucalyptus at Cold Water Cañon, where it made the twenty-fourth nest in a radius of a few rods, and another at Riverside where it hung from the gold of ophir and jasmine vines of a piazza.

By the time I had listed the fifty-two nests made of palm fiber, forty of which were hung in the palm, it seemed that, in southern California at least, *nelsoni* had won its right to the name of Palm-leaf Oriole.

SOME WINTER BIRDS OF THE SEASON 1908-9 IN
WAYNE COUNTY, MICHIGAN.

BY J. CLAIRE WOOD.

THE winter of 1908-9 developed some ornithological features of more than ordinary interest. The Evening Grosbeaks came nearly to our northern border, while at the St. Clair Flats Mr. Bryant says that the ducks, mainly Canvas-backs and Redheads, wintered in countless numbers; their abundance exceeding that of any former year within his recollection, and this statement is corroborated by Mr. John Krauss, who also informs me that he caught three King Rails near his hotel early in February, 1909, which are the first he has seen in winter, though I know of a previous record from that vicinity.

Here, in Wayne County, we had a flight of Pine Siskins, and more Redpolls than in any previous season, but a surprising scarcity of other northern visitors, such as Snowflakes and Northern Shrikes. The southward movement of Redpolls and Siskins began in early October, before the least suggestion of cold or snow, but the Snowflakes did not appear until early December, and then only about a dozen individuals were seen by Mr. Swales on Grosse Isle, and none on the mainland until February 18, when large flocks came in the wake of the most severe snow storm of the season and were gone on the 21st.

With an excess of certain northern visitors we would not expect unusual numbers of such birds as Song Sparrows and Meadowlarks, but more were seen than during any previous year. This was not due to abnormal meteorological conditions. During the winter of 1906-7 I gave the birds an amount of attention equal to the present season. Snowflakes and Northern Shrikes were common all winter. In December and January ten Song Sparrows and one Meadowlark were seen, while in the corresponding months of the present season I noted 41 of the former and about 125 of the latter, and yet the weather conditions were very similar during the two seasons. The mean temperature (Fahrenheit) was as follows,—November 1906 and 1908 were both 40°; December 1906, 29°

and 1908, 30°; January 1907, 26° and 1909, 29°. It is natural to suppose that only exceptional high temperature and clear weather induces the more hardy summer residents to linger into December but this is not borne out by facts. November was decidedly unpleasant with a total wind movement of 11,474 miles, three inches of snow and only six clear days. December 2 and 3 were the coldest days of the month, except the 8th, and the snowfall for the month was only 2.4 inches less than the average for 25 years, while January was 1.3 inches more than the average. This meteorological summary was kindly furnished me by the local station of the United States Weather Bureau.

The flight of certain northern visitors in connection with unusual numbers of two hardy summer residents presents an interesting problem but this is further complicated by the occurrence of Bobolinks and a Vesper Sparrow; two birds never before noted here in winter.

Everything considered, I cannot see where the birds were directly influenced by temperature, nor does food scarcity explain the flight of Siskins, for the bulk left an abundant supply here to pass further south; in fact, the only case of evident cause was deep snow covering the food supply of the Snowflakes, and a second cause happens when the lake freezes entirely over, forcing out the winter ducks.

In compiling the following list of winter birds I have considered only the months of December and January, for the reason that I was not afield enough in February to get a proper idea of relative abundance. It includes only such birds as for some reason possess a marked interest. The majority of permanent residents, ranging from Bobwhite to Chickadee, are omitted, together with visitors of unfailing winter occurrence, as the Ring-billed and Herring Gulls; also, the ducks, though the following were more or less common: Redhead, Golden-eye, Lesser and Greater Scaup and American Merganser.¹ In company with Mr. Herbert H. Spicer I devoted a

¹ It is not always possible to get satisfactory data on the local ducks. We will take the Canvas-backs as an example. I know that more than five hundred were taken last winter at the St. Clair Flats. This means that a hundred or more were crippled and escaped by diving. April 18 the deputy game warden told me that while crossing Baltimore Bay the previous day he counted 76 winged Canvas-backs. All the ducks of this species able to make the journey had long since left for the north. None of these cripples breed at the Flats, so far as I can learn, but they are present

part of each Sunday to field work during the two months under consideration. The territory selected was a part of P. C. 120 and 321, City of Detroit, and P. C. 696, Grosse Pointe Park; all being in what was formerly the village of Fairview. The following refers to the above locality unless otherwise specified. A star (*) indicates positive identification. Messrs. Walter C. Wood, Bradshaw H. Swales and Jefferson Butler very kindly furnished me with what data they possessed and I take this opportunity to assure them of my sincere appreciation. Mr. Swales's observations were made on Grosse Isle, Monguagon Township.

1. **Circus hudsonius.** MARSH HAWK.—A junior female appeared December 13 and was last seen January 10. Two primary feathers of the left wing were missing which enabled me to identify all seen on the various dates as the one bird. Mr. W. C. Wood saw a female on Section 29, City of Wyandotte, January 27.

2. **Accipiter cooperi.** COOPER'S HAWK.—A junior female was seen January 1 and 3; probably the same bird both days.

3. **Buteo borealis.** RED-TAILED HAWK.—Mr. Swales writes: "During December from one to three frequented the northerly part of the island and were seen every time I went back to the woods. They were what remained from the large numbers that passed through in October and November."

4. **Buteo lineatus.** RED-SHOULDERED HAWK.—A junior male appeared December 13 and was last seen January 10. December 20 it dropped into a flock of Tree Sparrows but missed its intended victim.

5. **Archibuteo lagopus sancti-johannis.** AMERICAN ROUGH-LEGGED HAWK.—December 16 a bird, in rather dark plumage, lit in a willow in front of Mr. Swale's residence and was observed at close range.

6. **Haliaeetus leucocephalus.** BALD EAGLE.—Mr. Swales saw a junior bird December 11 flying over the Detroit River.

7. **Falco sparverius.** AMERICAN SPARROW HAWK.—A male appeared December 13 and was last seen January 3. Another male flew down the main street of River Rouge Village, January 13, passing within ten yards of

throughout the year, usually keeping well out in the lake. Redheads, however, occasionally breed; the general belief being that an uninjured bird remains with a cripple, but it seems more probable that many recover their power of flight and no longer care to migrate. Four pairs of Redheads and two pairs of Lesser Scaups nested near Mr. Krauss's hotel in 1908. This may be considered unusual when compared with the Flats as a whole, and looks like enforced residence, but the facts in this respect will remain unknown and imparts an uncertainty that destroys their scientific value, in my opinion; and an equally confusing tendency is realized when we attempt to fix the dates of arrival and departure by individual bird records and will remain so until duck shooting is prohibited. These conditions also apply, in a measure, to certain species along the water front of Wayne County.

me. Mr. W. C. Wood saw one on Section 29, City of Wyandotte, January 27.

8. *Asio accipitrinus*. SHORT-EARED OWL.—Two owls of this species were flushed on a weed grown area November 8.* We cut through a corner of this land December 6 and flushed another. We did not again cross this section until February 7 when fresh castings and droppings were noted, and it is reasonable to conclude that at least one bird remained all winter.

9. *Bubo virginianus*. GREAT HORNED OWL.—A male was discovered in a Lombard poplar tree, bordering Lake St. Clair, December 13*. He was probably a transient from northern wilds where man is little known for the resident birds are educated to a degree of wariness that renders it difficult to approach within gunshot range of them. This bird refused to take wing. He was perched so low that by reaching with the gun from the ground I could almost touch his tail but he merely snapped his mandibles and calmly stared down the barrels. His stomach contained a Norway rat and a white-footed mouse.

10. *Melanerpes erythrocephalus*. RED-HEADED WOODPECKER.—Mr. Butler observed a number on Belle Isle, City of Detroit, December 27, which means that they wintered there. Some winters they are common on this island and again entirely absent. This is probably due to food conditions as they leave with the regular autumn migration prior to such winters as they are absent. This island is the only locality in the county where I have found them in December and January.

11. *Colaptes auratus luteus*. NORTHERN FLICKER.—Mr. Swales saw individuals December 3, 6 and 28; also January 3 and 23. They were in separate pieces of woods near the northerly end of Grosse Isle.

12. *Zenaidura macroura*. MOURNING DOVE.—One bird was seen December 19 by Mr. Swales.

13. *Dolichonyx oryzivorus*. BOBOLINK.—An emaciated male was taken December 6 and a second, in fine condition, on the 20. As to the amount of cold these birds were able to endure and survive I wish to state that the temperature was 18° below freezing December 2 and 3, and 21° below on the 8th.

14. *Molothrus ater*. COWBIRD.—Mr. Swales writes: "Two birds remained during December and, at least, until January 2, feeding with the Song Sparrows in a neighbor's barn yard."

15. *Agelaius phoeniceus*. RED-WINGED BLACKBIRD.—One adult male, in fine condition, December 13*. Mr. Swales noticed a male throughout December and until January 2 in the marsh along the northeasterly shore of Grosse Isle. The bird called frequently, flew well and seemed uninjured.

16. *Sturnella magna*. MEADOWLARK.—A flock wintered in a grain field near the lake. When first seen, November 22, it consisted of only six birds but this increased to thirteen December 13 and to sixteen on the 20th. This flock remained throughout the winter and disappeared the last week in February, probably returning further north. A specimen taken December 26 was much emaciated, due to gunshot wounds, but

another, together with birds of January 3* and 20*, were in very fine condition. All were males. January 20 I made a trip into territory not previously visited during the winter for the purpose of noting this species and found a flock of eight in the southwestern portion of Detroit, and another of seven on P. C. 669, Ecorse Twp., while between 50 and 75 individuals were seen along Baby Creek in Springwells Twp. Mr. W. C. Wood saw three on Section 29, City of Wyandotte, January 27, and a flock of about 40 on Grosse Isle, January 31. Mr. Swales writes: "In the central portion of the island a flock of 25 birds and another of about 40 wintered. They sang freely on clear days. On my way to and from the city I occasionally noted Meadowlarks between Trenton and Ecorse."

17. ***Loxia curvirostra minor***. CROSSBILL.—One flock of 8 in River Rouge Village, December 15. Mr. Swales saw five birds in a pine tree December 5 and three were adult males. Later he found two dead males under the tree.

18. ***Acanthis linaria***. REDPOLL.—I did not notice an autumn flight of Redpolls in numbers and doubt if such occurred in the county. An occasional flock of three or four individuals and about the same number of single birds came in from Lake St. Claire and continued toward the west. December 20* a flock of thirteen became established and gradually increased to about a hundred on January 10. No further increase occurred until its identity as a flock was obliterated in the numerous flocks of the first northern flight, February 21. I was in River Rouge Village a part of nearly every week day all winter and here, during December, an occasional Redpoll was seen flying westward, apparently having crossed the Detroit River from Canada. The first and only flock consisted of ten birds and took possession of the village January 25. From that time all passing individuals joined the flock and none were seen to leave it. February 4, the flock numbered 50 and soon increased to 64. Late in the afternoon of March 29 I found them very restless and noisy and gone the next morning. Section 24, Monguagon Twp., marks the first turn across Grosse Isle into Canada from the general migration route along Lake Erie. Here on March 7 and 21 we saw numerous small flocks. Mr. Swales writes: "I saw about ten December 10 and from that date three to a dozen were seen almost daily until December 28, after which I failed to see them until early February when they appeared in considerable numbers. Last seen April 10."

19. ***Astragalinus tristis***. GOLDFINCH.—A flock of five established itself November 22 and remained unchanged until February 7 when we found it had increased to twelve, and to about one hundred on the 21st. Last seen March 28, after which it probably took to the woods, as April is the month we find the Goldfinches among the leaf buds in the woods, especially where poplar trees abound.

20. ***Spinus pinus***. PINE SISKIN.—Noted all days afield, from December 6 to January 10*, in numbers ranging from one to five birds. Seen again, and for the last time, February 21, a flock of four. Mr. Swales writes: "Seen until December 28 but none after that date."

21. **Plectrophenax nivalis.** SNOWFLAKE.—Mr. Swales writes: "Individuals were seen December 7 and 9, and a flock of about ten on the 15th."

22. **Calcarius lapponicus.** LAPLAND LONGSPUR.—A flock of 8 December 13 and two flocks of 7 and 8 December 15, the latter in River Rouge Village. Not seen again until March 22.

23. **Poecetes gramineus.** VESPER SPARROW.—Mr. Swales secured a specimen December 29. It was fat and apparently not injured. This is the only positive winter record.

24. **Junco hyemalis.** SLATE-COLORED JUNCO.—A male was noted near the lake December 13. Mr. Butler saw four in Section 11, Greenfield Twp., December 25. Mr. Swales writes: "A flock of 15 seen December 22, and from two to ten after that date. A flock of 20 January 2, and not noticed again until January 27."

25. **Melospiza melodia.** SONG SPARROW.—Noted on all days afield during the two months in numbers ranging from three to six. Positive records December 20 and 26; also January 1, 10, 17 and 24. Sixty-three percent of these were females and all were in fine condition. Mr. Swales writes that a few were scattered in the river marshes all along the eastern shore and sang freely on clear days.

26. **Cardinalis cardinalis.** CARDINAL.—A male was seen in Woodmere Cemetery, Detroit, January 20, where it probably wintered. Mr. Swales writes: "There was a decided increase in the numbers of this species here this winter and I saw one to four on every field excursion during December and January. I found Cardinals all over the island this winter and certain individuals or pairs could nearly always be found in favorable places."

27. **Lanius borealis.** NORTHERN SHRIKE.—December 15, Mr. W. C. Wood saw one bird while driving between the villages of Ecorse and Taylor Center. Mr. Swales saw one December 28.

28. **Sitta canadensis.** RED-BREASTED NUTHATCH.—Mr. Swales noted three birds in a clump of pines January 2 and another February 11.

29. **Regulus satrapa.** GOLDEN-CROWNED KINGLET.—One seen December 6 in a cluster of poplars bordering Lake St. Clair, and three in the same locality January 10*. They were lively and noisy but the male taken was in an emaciated condition. Mr. Swales noted from three to a dozen on a majority of the days during both months.

30. **Planesticus migratorius.** ROBIN.—Several Robins were reported as occurring in the city cemeteries and parks. Mr. Swales writes: "About a dozen wintered in the orchards around my home and were seen throughout December and January."

AUDUBON'S LABRADOR TRIP OF 1833.

BY RUTHVEN DEANE.

For many reasons I think that this expedition has been generally regarded as one of the most memorable of the many Audubon so successfully accomplished. Much valuable work was done, considering the many hardships endured, the long fatiguing hours necessary to complete his drawings, made under most unfavorable conditions, and the natural responsibility of the five young men who accompanied him. All these details we have read and reread for so many years in that most attractive episode 'Labrador',¹ and later 'The Labrador Journal'² which records the daily events between the departure from Eastport, Maine, on the schooner 'Ripley,' in command of Captain Emery,³ on June 6, 1833, and the safe return to the same port on August 31, 1833.

Audubon's party consisted of his son John Woodhouse Audubon,⁴ William Ingalls⁵ and George C. Shattuck⁶ of Boston, Thomas Lincoln⁷ of Dennisville, Maine, and Joseph A. Coolidge⁸ of Eastport, Maine, all young men between eighteen and twenty-one years of age. None of them had had any sea-faring experience except young Coolidge, whose father had charge of a revenue-cutter and had taken Audubon to various islands on the Maine coast in quest of birds.

In 1903, Dr. William Ingalls was the only surviving member of this party. Having incidentally learned that he was still living, not only did I have the pleasure of a delightful correspondence, but a still greater satisfaction of visiting with him at his home in Roxbury, Mass., in July, 1903, only five months previous to his death. Al-

¹ Orn. Biogr., Vol. III, p. 584.

² 'Audubon and his Journals,' 1897, Vol. I, p. 349.

³ While I have been unable to trace anything definite regarding Capt. Emery, it has been reported that he afterwards was in command of an ocean liner and later died insane. (R. D.)

⁴ Born, Henderson, Ky., Nov. 30, 1812; died, New York, Feb. 21, 1862.

⁵ Born, Boston, Mass., Jan. 5, 1813; died, Roxbury, Mass., Dec. 1, 1903.

⁶ Born, Boston, Mass., July 23, 1813; died Boston, Mass., March 22, 1893.

⁷ Born Dennisville, Maine, March 27, 1812; died, March 27, 1883.

⁸ Born, Maine, 1815; died, San Francisco, Cal., July 30, 1901.

though in his ninetieth year his memory was very clear as to many of the experiences of his Labrador trip of seventy years before. At my request he wrote a little account of how he happened to be selected as one of the party and of various incidents which occurred while on the trip. As no one besides Audubon has ever written of this expedition, I feel sure that the following rambling narrative, and the recollections of an eye witness, will be of much interest.

Joseph A. Coolidge remained in Eastport, Me., until 1849, when he emigrated to California, remaining there until his death July 30, 1901, having been a respected citizen of San Francisco for forty years. In a letter received from Mr. Coolidge, dated Dec. 31, 1896, he writes the following in reference to his trip to Labrador with Audubon:

"Our custom while there was to anchor our vessel in some harbor and cruise in two boats (east and west) commanded by John Woodhouse Audubon and myself. Of course there was some rivalry as to who should be the most successful, not in number of birds, but in the quality of specimens. Our orders were to kill them with as few shot as possible, so as not to disfigure them. On one occasion I returned to the vessel late at night and found those aboard in ecstasies over a very fine bird which John W. Audubon procured. I examined it and pronounced it the finest specimen of the cruise, but that I could procure a better one and would wager the wine for the company upon it. I then brought my bird and all examined it and finding no shot mark upon it said I must have found it, but I convinced them that I did shoot it by exhibiting the shot mark near the neck. I had killed it flying with only one fine shot; it dropped dead without a struggle, showing a slight stain on the feathers, which I pulled out. A copy of this specimen (I think) may be seen in the plate representing the Red-throated Diver. I do not mention this to assert my superiority as a marksman over Audubon's son, but consider it merely a chance shot."

The letter given below from John James Audubon to his wife is of particular interest in this connection, as it was written on board the 'Ripley' during the Labrador trip, and is here published for the first time. My thanks are especially due to Miss M. R. Audubon for the gift of this valuable document.

DR. WILLIAM INGALLS'S RECOLLECTIONS OF THE LABRADOR
TRIP.

Roxbury, Mass., October 30, 1902.

My dear Sir:—

Your letter of the 23rd gave me much pleasure and I will “commence at the commencement” if you please. Under some trifling ailment my father¹ bid me to bed and the next forenoon he and Dr. George C. Shattuck² came to my bedside. Dr. Shattuck looked at me a moment and both men turned away to the window; presently Dr. Shattuck said to me, “William, my son George is going to Labrador with Mr. Audubon, would you like to go with him?” I did not spring out of bed but I grasped his hand with both of mine. How George and I got to Eastport I have not the faintest idea, but I presume we took a run on the Mall and then leaped from Boston to Eastport and if you do not believe this you have no imagination. We waited two or three days for some last things to be done and for Mr. Audubon. We five boys and Mr. Audubon found in the after cabin of the schooner good and comfortable bunks. Captain Emery took care of himself. Our dining room was midship and this was used when we had birds to skin of an evening after a hunt, which we preserved with arsenic. I suppose we were careful for no poisoning occurred. Now, on the 6th of June, 1833, we left the wharf at Eastport, passed Lubec and were fairly launched for our trip in the fine, but not very large schooner ‘Ripley.’ Our first stopping place was the entrance to the Gut of Canso, having passed Seal and Mud Islands. In our row boat we went near the fine, beautiful clear rocks of the shore; the water so clear we could see lobsters on the bottom, so we tickled their backs with oars which they grasped with their great mandibles and held on till they were let into the boat.

Having passed through the gut entering St. Lawrence Bay, we came near the Gannett Rocks, four, rising with high perpendicular sides. Many hundred Gannetts were upon the rocks and thousands

¹ Dr. William Ingalls, Sr. A celebrated physician in and about Boston, Mass., died in 1851.

² Dr. George Cheyne Shattuck, born Templeton, Mass., July 17, 1783; died Boston, Mass., March 18, 1854. At one time President Massachusetts Medical Society.

flying above and around uttering peculiar noises, snapping their long, sharp and hard bills. It was wonderful. I cannot give you the events of our voyage in true catenation, except my desultory presentation. We soon came to Wapitagus Harbor which has a tortuous and narrow entrance but when inside one is struck with wonder at being surrounded by high ledges of beautiful, clear gray granite forming sides like a basin, of course irregular, large enough to accommodate a fleet. Sailors call it 'Wappitygun,' meaning a whopping great gun — there being on the top of a high sharp pinnacle a large stone which at a distance, with moderate fancy, resembles in form a large cannon. How could we be there, we boys, and not climb up for a nearer inspection? In another place, or harbor, there was a similar peak upon which there is an immense boulder said to be movable, rockable; we proved the fact but could not start it down hill, although we tried. This is a good place for me to tell of the sagacity of our Captain upon getting into the harbor, his manner of doing it and the feeling of responsibility he manifested. The boat launched and manned, Captain with lead-line in hand, and *eating* tobacco, standing aft, eyes everywhere, excited yet weary, slow, easy, pull hearty, accomplished. He was very alert, always willing and ready. Mr. Audubon being almost all the time aboard at work did not have so good a knowledge of the *moss* of which he speaks, as we boys did, for we were sent out to different distances from the ship to explore, to gather information, to hunt and to bring ourselves and *new species of birds*, home at night.

You must fancy the surface over which we toiled, a rich, thick, beautiful, spongy moss, in lumps as though baskets with rounding bottoms the size of a peck, up to two bushels, turned bottom upwards and laid together, joined, the rounding elevation being five to ten inches. Do you get it from my clumsy description? Now, walk. No, proceed for a mile over this carpet and you will experience the fatigue of a walk from Cambridge to Boston and return. It was different from walking through snow six to ten inches deep; 'twas lovely moss to look upon. In some places we found straw-colored berries the size of cherries, the flavor pretty good. The name we gave them I forget.

Having described imperfectly the moss I am induced to try a

one day, if you are not tired of reading all this. I, however, am delighted with the task I have set myself in writing this.

Earlier than usual we set off for a long row to mainland. We hauled the boat up high and men and boys scattered, but not so very far apart as to be out of reach in an emergency. A pretty extensive plain we had to cross to arrive at the foot of rather abrupt ledges in which a little way in, there were trees of a stunted growth. As to game, I think all our bags were empty as we found on assembling at the hour agreed upon at the foot of the hill. To cross the plain from where the most of us were there was one pretty large, damp looking area, with sparse grass and other growth upon it. This spot was not especially avoided by us, some were one side and some another. I happened to be the one who while going directly across found myself over my ankles; suddenly a step or two more and my knees were wet, in about two more I was down to my waist. Now, I said to George Shattuck, "This seems to be serious, the flat of my gun laid down does not help me and I am getting deeper." By this time Shattuck, Lincoln, Coolidge and John Woodhouse Audubon were looking around for something to afford me a purchase. Fortunately, Tom found a bit of wood, some part of a ship, and by this I was helped out of the quag-mire, a sort of boggy mud sticking all over me and I was cold, but thankful. The jolly tars launched the boat and as there was a breeze, set the sail. In ten minutes the breeze became a wind, in ten minutes more the wind became a tempest; William Ingalls shivering and wet. Down came the sail, out the oars, I rowed but it did not warm me and I returned to aft part of the boat. It blew harder and the waves were higher; again it blew great guns and the waves were higher yet. It seemed to me that more than a third of the keel was out of water at every recovery from a plunge. Stout four rowers; we came abreast of a little island and near enough, so that some one suggested camping there for the night. I noticed we did not gain a foot for as much as twenty minutes while trying to get by the island. At last we did move and got under the lee of some high land and then went ahead until we gained the ship. I think every one of us who were in the boat were conscious of being in great peril; there was a subdued expression prevailing, if I may say so, and when we struck the lee there were long drawn sighs; no word was spoken

unconsciously. I verily believe there was a spirit of thanksgiving even by the roughest, careless sailor boy,—and why not? One day Mr. Audubon and all of us went upon a not very large island well covered with nests of Guillemots and other seabirds, there was much shooting. Eggers go upon these rocks and smash every egg they can find. Next day they find plenty of fresh laid eggs. Now, I was standing watching the actions of the birds, Mr. Audubon being a little ways from me; presently a Tern, *Sterna arctica*,¹ flew towards me swiftly, falling very near my feet seeming to be in consternation or fright; with flashing swiftness another Tern descended and in his dart came within a very few inches of the terror stricken bird. The next day on our return towards night from our excursion, I darkened a little the table at which Mr. Audubon sat. He looked up and saluted me with "Hollo, Sangrido" (he gave me this name the first day), "he is here, he is scared, afrighted, he is looking up at you, you cannot help him." Now, the dear man had his chalks upon the table and upright in front of him was a pine board upon which was secured in position by means of long thin pins, the bird whose likeness he was transferring to the cardboard before him. When you look at this picture you will see with wonder *expression*, even after reading this lame description. Have you his large book, 'Birds of America'?

We brought at various times plenty of sea birds aboard and we made enjoyment out of assembling in the midships cabin of an evening to skin and dress them, but of *new* species, none. I think this is a good place for me to begin an outline of my remembrance of the individuals of the party.

Mr. Audubon was known by many and I think there is no exception to the fact that those who have spoken of him have testified to his great amiability and manliness, his humanity and it has always seemed to me he was one of those men who on meeting, one would at once say, "Bless you, dear man."

Tom Lincoln, quiet, reserved, sensible, practical and reliable. George C. Shattuck, a quiet man, but if you had thought him a goose you would soon have discovered your mistake. Joe Coolidge, unselfish, with a lot of sea and other practical knowledge and a right

¹ In the 'Labrador Journal,' June 25, 1833, Audubon writes: "Made a drawing of the Arctic Tern of which a great number breed here."

good fellow. John W. Audubon, always good natured, he and his papa the best of (boyish) friends, cheering us sometimes with his violin. I have spoken of the Captain whom we all honored for his skill and his evident desire to help the expedition. And now let me repeat a truth which was uttered by Mr. Audubon. "Brought together, strangers, three months in a small ship, we can say there was not a word or spirit of an unpleasant nature in all that time," and permit me to say that cornmeal bread made by a good cook with sea birds eggs is fit for ———— Yum-Yum!! Excuse me, I am nothing but a boy.

Were you ever anywhere in company with black flies? Well, don't seek them, unless you wish to get a large number of them to put in a bottle of alcohol. George Shattuck came on board one afternoon, face and neck a mass of bites. The black flies are beastly and can easily draw one on to suicide.

If I have added anything about our trip to Labrador to that which you have read or can read, I shall be much pleased. Having left Labrador we crossed over to St. George's Bay, Newfoundland, and we saw some fine Newfoundland dogs, one of which was very large, tawney and so fierce that they kept him chained. We were honored by an invitation to a ball,¹ to which we went. To say we had a good jolly time, dancing reels and country dances,—*no minuet*; we danced. There were girls at the ball, some of them were pretty and all were jolly and good. We started for the ship at a proper hour in a fog, towards morning, but we found the ship 'all's well.' The home-coming is well described by Mr. Audubon. Of course each one of us used his own eyes and other senses. I think I had better stop here, lest I prove myself a bore. I cannot realize that seventy years have passed since we were together on that truly-wonderful shore.

Accept my best wishes,

William Ingalls,² M. D.

¹ "A Ball in Newfoundland" (episode), Orn, Biogr., Vol. 11, p. 211.

² Dr. William Ingalls was born Jan. 5, 1813, at No. 4 School St., Boston, Mass. He attended the old Latin School, which stood on School street, on a portion of the site occupied by the Parker House. He was graduated at the Harvard Medical School in 1836 and began the practice of medicine in this city, but after two years removed to Louisiana, and remained there eight years. Returning to Massachusetts he settled in Winchester. In 1862 he entered the Army as a surgeon, and served with

AUDUBON TO HIS WIFE.

Great Macatina Harbour, coast of Labrador. Latitude 50°, 43', Longitude 59°, 15' Greenwich, called on the charts, Bay de Portage, July, 23d, Monday afternoon, 1833. Thermometor, 58°.

My Dearest Friends,

The schooner 'Angelica' which sails tomorrow from this place for Quebec will take this letter there and I hope most sincerely that in less than three weeks it will have reached thee, found thee well and happy and the whole of those who feel any interest in us. Our voyage from Eastport was as prosperous a one as we could possibly have wished for, in eleven days we landed on this coast and visited the island of Magdelaine and others in the Gulf of St. Lawrence previously. We first landed on this coast at a place called on the charts, Mount Joly or American Harbour, where we found seven American Cod fishermens vessels and 2 from Nova Scotia, a few days afterwards H. M. Schooner "Gulnare"¹ came in and anchored near us. This vessel being now employed in the coast survey of this coast is commanded by men of science, and

the Fifth Massachusetts Regiment nine months and then in the Fifty-Ninth Massachusetts until 1865. For more than twenty-five years he had his office at 556 Tremont Street, and from 1870 until 1885 was surgeon in the City Hospital. Dr. Ingalls was a Mason and Odd Fellow. He was a member of the Massachusetts Medical Society, the Obstetrical Society and other organizations of physicians and surgeons. He died in Roxbury, Mass., Dec. 1, 1903.

¹ Capt. Henry Wolsey Bayfield, R. N., born Jan. 21, 1795; died with the rank of Admiral, Feb. 10, 1885. He was employed under the British Admiralty from 1815 to 1856. As a mark of approval he was appointed in 1827 by the Lord High Admiral, the Duke of Clarence, to survey the St. Lawrence River and continued until Oct. 21, 1856, when he attained the rank of Rear-Admiral. He was a resident of Quebec from 1827 to 1841, and was an original member of the Literary and Historical Society of Quebec, and corresponding member of the Natural History Society of Montreal. During a recent visit in Quebec, I had the pleasure of an interview with Capt. J. G. Boulton, R. N., who has had in his possession the original journals of the late Admiral Bayfield, and I am under many obligations for the following account of Bayfield's meeting with Audubon when on the 'Ripley' off the Labrador coast.

"Little Natashquan Harbor, June 24, 1833. Mr. Audubon, the naturalist, we found here on the American schooner 'Ripley' with several young men, two of them medical students. Mr. Audubon has come principally to study the habits of the water fowl, with which the coast of Labrador abounds, and to make drawings of them for his splendid work on the birds of America. We found him a very superior

we found Captain Bayfield, R. N., Doctor Wm. Kelly¹ and others, not only polite but truly kind to us.

I will not now attempt to say a word about the country we are in, it is so unlike anything that I have ever seen before and so far beyond my means to describe, that to let it alone may (for the present at least) prove the most prudent. We are, thanks to God, all well! and have all been so since we left the United States. Our vessel proves a fine sailor and a staunch one. Our Captain a first rate man, active, industrious and pleasing in his manners. Our young gentlemen agree delightfully together and thus far I am pleased with the charge I have of them.

The information which I have received connected with the publication of my work will prove, I believe, unprecedented and although I have procured only 2 new species, one a *Fringilla*² and the other a *Parus*,³ and made but 17 drawings, I feel well satisfied. We have however been deceived as to the quantity of birds represented to be found with here. Birds are rarer than even on the

person indeed. On returning Mr. Audubon's visit, was delighted with his drawings, the birds being represented of life size and most beautifully painted."

Under the same date the Bayfield journals give the following account of the "Eggers" on the coast of the Canadian Labrador. In his 'Ornithological Biography' (Vol. III, p. 82) Audubon gives a most graphic account of the traffic in the eggs of Labrador sea-birds, but Bayfield has added some facts of interest.

"June 24, 1833.—Mr. Audubon dined on board the 'Gulnare'. . . . We heard from the Americans [he alludes to the American fishermen] about the 'Eggers,' a sort of people, we, today, first heard spoken of as a body. We had, previously, no idea of the extent of the 'egging business,' as our informant termed it. It appears that in some seasons twenty small schooners, or shallops, of 20 to 30 tons, load with eggs from this coast (the locality was principally the Meccatina Islands). Halifax is the principle market for them, where they, at times, fetch a much higher price than hens eggs.

"They are stowed in the hold in bulk, and kept for several weeks without any preparation. These men, the 'Eggers,' combine together, and form a strong company. They suffer no one to interfere with their business driving away the fishermen, or any one else who attempts to collect eggs, near where they happen to be. 'Might makes right,' with them, it is clear; they have arms, and are said by the fishermen not to be very scrupulous about using them.

"As soon as one vessel is loaded, they send her to market, others follow in succession, so that the market is always supplied, but never glutted. One vessel of 25 tons is said to have cleared 200£ by this egging business, in a favorable season."

Bayfield's vessel, the 'Gulnare,' was a two-masted schooner, square rigged on the fore-mast, with no steam power.

¹ "A man of talents, a student of botany and conchology." (The Journals.)

² *Melospiza lincolni*. Orn. Biogr., Vol. II, 1834.

³ *Parus hudsonicus*. This was not a new species. Audubon found a nest and four young, able to fly, July 18, 1833.

St. Johns River of the Floridas at the exception of those of a few species of which thousands may be seen on the outer sea islands. Scarcely a day that have we been without a constant fire. We see snow in all our walks. Mosquitoes and Caraboo flies in thousands at every step. A growth of vegetation that would astound any European garden and yet not a *cubic foot of soil*! Granit, Granit, Granit, Moss, Moss, Moss and nothing but Granit Rock and Moss of thousands of species.

I have a drawing of a pair of Willow Grouse with a covey of young which will perhaps give you a faint idea of the exterior or superficial aspect of the country, but as I have said before, the country cannot be described at present. John's violin and a flute prove very agreeable *attachés* to our expedition; nothing indeed is to me more pleasing of a rainy, foggy cold day than the sounds of chords every one of which lead me to thy side and blessed company *when with thee*. Write to my worthy friend John Bachman, that I shall take to *him* a cargo of yarns, to friend Berthoud¹ say a cargo of egg shells, but to dear Eliza, alas I fear *no furs*, 10 guineas is what we are asked for a Silver gray Fox, 6 to 7 pounds for a black one and as to Sables or other very fine skins, scarcely one is now to be met with for purchase. God willing we will be on our passage homeward on the 1st to the 10th of Sept., *we are told* that field ice is abundant at the lower end of the Belle Isle Straights, and we are also told that snows begin to fall about the middle of Sept.

For episodes I will have "A Labrador Squatter."² "The Cod Fisherman,"³ "The Eggers,"⁴ "The Sealers"⁵ &c., &c. Had it proved convenient for our good and valued friend Harris⁶ to have come with us, I think he would have liked it much (particularly tell him as the country bids defiance and description) and I am sure it would have found *a few means* of obtaining *abundance of* [torn].

¹ Nicholas Augustus Berthoud, brother-in-law of Audubon.

² 'The Squatters of Labrador,' Orn. Biogr., Vol. II, p. 154.

³ 'Cod-Fishing,' Orn. Biogr., Vol. II, p. 522.

⁴ 'The Eggers of Labrador,' Orn. Biogr., Vol. III, p. 82.

⁵ The episode of 'The Sealers' did not appear in the Orn. Biogr., nor have I ever seen it in any of Audubon's writings. (R. D.)

⁶ Edward Harris, Morristown, N. J. In 'The Journals' we see that he met Audubon at St. John, N. B., on his return from Labrador, and handed him the first home letters he had received in two months.

We will proceed to *Bras d'Or*, about one hundred miles east and north of this as soon as the wind will admit. That place is the general rendezvous of all the fishermen, then perhaps (and I hope it will prove so) I may find a letter of thine. To tell thee how I long to see thee again would be superfluous. Copy this for Bachman, show it to Harris and Nicholas,¹ of course, and copy it for good Dr. Parker,² the same for Victor.³

Now my dearest friend, God bless thee and may I find thee well and happy and all going on well. John joins me in every thing, he is now out scrambling on the mountains with the rest of the young men. Our collection of plants, I hope will prove agreeable to thee and others, *beds of Mosses* if not of roses and abundant I assure thee. Think of Mosses in which at every step you take you sink in up to your knees, soft as velvet, and as rich in color. Once more
• God bless thee.

Thine friend and husband forever,

John J. Audubon.

[Superscribed]

Mrs. Audubon.

Care of N. Berthoud Esq.

Merchant.

New York.

Via. Quebec.

Recd. Montreal, Aug. 25, 1833. and forwarded by H. Gates.

¹ Nicholas Augustus Berthoud, New York.

² Dr. George Parkman, Boston, Mass.

³ Victor Gifford Audubon, who was then in London supervising the publication of the 'Birds of America.'

A WINTER OF RARE BIRDS AT OTTAWA, ONTARIO.

BY G. EIFRIG.

THE winter of 1908-9 will long be a memorable one to ornithologists of Ottawa and vicinity. In the long winters of this section birds are usually conspicuous only by their absence, save when an incursion of Pine Grosbeaks, Canada Jays or Snowy Owls occurs which is not too often. But during last winter birds were about, not only in greater number of individuals than before, but also in greater variety, and these various species contained some of the rarest of our North American birds. Nor did these usually very restless sojourners from the far north and west only afford us a passing glimpse of their interesting selves, but they lingered for an unheard-of length of time. Thus they afforded one an excellent chance for observing them and their habits, etc., better than usually falls to the lot of bird observers. Therefore the writer considers the event important enough to chronicle it in 'The Auk.'

Already in the fall there were auguries, that led one to expect things "to happen" in the bird line during the winter. Many flocks of White-winged Crossbills (*Loxia leucoptera*) were whirling over the fields and fallows around the city — the first time in six years that they were observed by me. November 2 the first King Eiders (*Somateria spectabilis*) that had ever been taken here, were secured (Auk, XXVI, 59), an occurrence which was repeated on December 2 and 3, only that greater numbers came. The Brännich's Murre (*Uria lomvia*) which had up to the time of writing the article that appeared in the January number of the current volume of 'The Auk' not showed themselves, did so to the number of about 500 on December 19, and five more the next day, three of which I received from a gunner. In this connection I would correct an erroneous impression I may have conveyed by the italicizing in the article referred to above the word "eaten," conveying the meaning, which I really held at that time, that the flesh of the *U. lomvia* must be very rank, therefore poor eating, implying thereby that the French-Canadian rivermen who eat them, must either have a ravenous appetite or very poor taste for what is good eating and what not. To determine for myself, I had one of those three

Murres prepared like a wild duck, and I must say that the flesh was very good, in taste much like a wild duck. It must be borne in mind, however, that when the Murres reach here they are very lean, entirely without fat, which probably would spoil their taste.

Although the coming of the Murres is a matter of interest to ornithologists, who are thus urged to probe for the reason that these birds leave their salt water home to certain doom inland — for none return — it does not thrill one in the same manner that the coming of the beautiful and also mysterious comers from the far north does, about which I had intended to write. To begin with the first. On December 13 a flock of about 30 Bohemian Waxwings (*Bombycilla garrula*) took up their quarters in a residential portion of the city, where the streets are lined with fine shade trees, by which also many houses are surrounded, and among which are many mountain ash or rowan trees (*Sorbus americana*). For the first few days they stayed in some trees near the Carnegie Library, and then shifted to another corner where there was one little tree. Here they stayed till the tree was completely stripped of berries. There were other rowan trees close by, larger and several together, but the berries on this tree must have been so much more to their taste that they would not move, the small tree was partly over the side-walk and one could watch them at close range. Like the Cedarbirds (*B. cedrorum*) they are voracious eaters, so much so that they are usually very silent, taking no time for giving vent to a few notes. However, sometimes they do this, uttering some subdued, very sweet notes in rapid succession, like a string of beads, much like the Cedarbirds. Their manner of eating rowan berries differs from that of the Pine Grosbeaks (*Pinicola enucleator*), which are also very fond of these berries and were often with the Waxwings. The Grosbeaks pick off the berry, crush it, and *suck out the seeds*, ejecting the pulp of the berry. The seed is what they are after. But the Waxwings eat the complete berry, wherefore there was next to no debris under the trees where they were at work, which is always very conspicuous where Grosbeaks are feeding. During the first weeks of their stay they allowed one to approach them to within five to six feet, but later on they became more wary, and if people stood under their trees they took wing to some nearby larger trees. After cleaning that one little tree, they divided up

into smaller bands, one of which cleaned a large rowan tree on Queen Street, near the busiest section of the city, the Pine Grosbeaks, however, helping them assiduously. On February 26, I saw them in an old orchard adjoining the grounds of a fine residence in the same part of the city. Here they had discovered the old apples clinging to the trees and were busily eating those. It was a scene not soon to be forgotten. There was bright sunshine above, glistening snow below, in the trees the birds, showing their delicate tints, the chestnut under tail coverts, the red and yellow tips on the wings; with them a great number of Pine Grosbeaks, engaged similarly, and finally a *Robin*. But more of that later on. They remained until about March 4, thus giving us over two and a half months of their presence, a longer time than I ever have seen reported from any city. Three specimens, two males and a female, were secured for me. When comparing these with others taken out west, and formerly taken here, I was struck by the prevailing dark color of the under and upper parts; there is also much less of the light fawn color about the head. I noticed the same thing on specimens taken at Kingston, Ontario, where they had also been common, but for a much shorter time.

To make things more interesting, a flock of about twenty Evening Grosbeaks (*Hesperiphona vespertina*) came to our city on February 7, and liked it so well that they stayed until May 15, again an unprecedented case, so far as the writer is aware, for any city from which records have been published. Like the Waxwings, they did not show the least fear of man and took up their abode right in the city, in the same section. As early as November 4 Mr. Wm. McComber, a farmer of Bouchette, Quebec, 60 miles north of Ottawa, had seen and taken a single individual of this species. But here we had a whole flock, fine males and some young and females, right in the city, also allowing close scrutiny. While the Waxwings were so very partial to rowan berries, these Grosbeaks fell into the Manitoba maple trees (*Acer negundo*) and never strayed far away from the chosen one till all its samaras were stripped off. It was indeed an unusual and pretty sight to see these fine birds right between houses, sometimes alighting on their roofs and eating snow, or hopping about on the ground below for the same purpose. Several times they were also seen in mountain ash trees, eating

berries. They were noisier than the Waxwings, frequently uttering loud call notes and little warbles. The former had much of the quality of those of the English Sparrow mixed with the tone-quality of those of the Robin; the latter reminded one still more strongly of the Robin's song. After the trees at their first station were stripped, they roamed more about the city, being seen in several places, but from time to time they would come back to the first place, as though they liked it best. Then they disappeared from the city and it was thought they had left us entirely, but in April they were rediscovered in a small woods near the city limits, which is composed of ash, elm, and white pine trees. It was hoped that some might take it into their head to breed, but they were no longer seen after May 15, thus staying here over three months. Three specimens were secured for the writer, one adult male, a female and a young male. An analysis of the stomach-contents made at Washington showed in one, seeds of sumac 8 percent, seeds or rather cotyledons of some species of ash (*Fraxinus*) 92 percent; in the other two only the ash cotyledons. As they were shot from ash-leaved maple trees (*Acer negundo*), this seems remarkable. The adult of this species also is much darker than other specimens in collections examined and compared by the writer.

The Pine Grosbeaks (*Pinicola enucleator*) also favored us with their presence in greater numbers and for a longer time than they do usually. At times, near that old orchard referred to above, there were about fifty in sight. The greater number are always females and young. In a flock of about ten, one may expect to find one to three bright colored males. But, as in everything, these birds are eccentric also in this respect; some flocks are composed entirely of females and young, and some again of only old males. They are very greedy feeders. One that I kept in a cage for a day, from the moment he was brought in, devoured, practically all the time, the rowan berries provided for him, not minding the new surroundings and the people watching him in the least. Indeed, they are so intent on feeding, that boys often catch them by slipping a horse hair noose over their heads. In a short time the litter from the berries covered the ground below every mountain ash tree. Often when seeing this, and looking up, one will find a flock busily eating above him, which he would otherwise not have suspected of being

there, so noiseless are they. Beside rowan berries, they are also fond of eating old apples, sumac berries, buds of maple, larch and pine trees, and this year, because they stayed so long, they finally turned to the litter of the rowan berries, which they had earlier discarded. The first flocks arrived here November 5, and the last were seen March 21. A flock of these birds on some evergreen trees, especially if there are some bright males among them, is, when the sun shines brightly, a pretty sight, such as I had on March 8 on the Experimental Farm. The stomachs of six sent to Washington contained seeds of *Rubus*, conifers, *Vaccinium*, ash, and buds of several trees, in varying proportions in the different stomachs.

In still greater numbers than the Pine Grosbeaks were present the lively little Redpolls (*Acanthis linaria*). Although they are also very erratic in their comings and goings, they may always be expected here with some regularity each fall and spring, even if in varying numbers and of varying length of stay. So there were many flocks here in the fall (1908), when the *Loxia leucoptera* also were here. Then they disappeared for a while to reappear about January 24. Each day for a while added fresh flocks to their numbers until they were very plentiful all over the city and the outskirts. Often they would be seen in the company of English Sparrows in vacant lots and waste places busily picking off the seeds from tall weeds that were protruding from the snow; at other times they were with the Pine Grosbeaks on and below the trees, eating the debris of the rowan berries. From about April 10 large flocks were roaming about the outskirts of the city, sometimes in such numbers that over quite an area every branch and twig on every tree and bush held one or more of them. A strange excitement seems to take hold of them; they will then sometimes nearly alight on one's head, like a flock that whirled about me on April 15. Mr. Bedard, the rifle-range keeper, during three weeks about this time daily saw large flocks, some of which he estimated at 2000 birds. And many of these flocks flew in a *southerly* direction! The last ones seen here left us on May 9. At times they are very tame, allowing close approach, at others, very shy. Sometimes they whirl about like Snow Buntings, but usually their manner of flight and their notes are identical with those of the Goldfinch. They are very fond of the seed of the various species of birch, where some

could always be found. On January 24 Mr. E. White saw three of the rare Hoary Redpolls (*A. hornemanni exilipes*) in his garden.

That some at least of the White-winged Crossbills had stayed near the city for the winter was proven on February 8, when Mr. H. Grob made a Northern Shrike (*Lanius borealis*) give up its prey, which it was just eating, and which proved to be a Crossbill of this kind.

One of the greatest surprises, however, was the wintering here of a small flock of four or five Robins (*Planesticus migratorius*). Already about December 20 they were seen near the Parliament building, but they were looked upon as belated fall migrants, who certainly would not think of staying here over the winter. Imagine the surprise of Ottawans in general when in January these birds suddenly took up headquarters in the trees around the city hall, where their well-known call notes greeted passersby and made them wonder momentarily, whether or not the seasons had suddenly been shifted. They were often with Pine Grosbeaks feeding on the rowan berries. Although the winter of 1908-9 was an unusually mild one for Ottawa, these poor birds must have suffered a great deal. One was seen after a while with a frozen leg and all seemed to have disappeared before the first real spring arrivals of their kind came. No doubt, they were frozen to death by one of the few short cold spells which occurred during the winter, when the thermometer went down to about — 16°. It may perhaps be also worthy of note, that our Robins here, which are extremely plentiful in the city and increasing in numbers, are perceptibly larger than those that live further south.

Also in producing freaks the last winter was a record-breaker. Several albino English Sparrows (*Passer domesticus*) which, by the way, are here starting to cultivate the habit of migration, were seen, as well as partial albinos, which, according to the distribution of the white patches over the plumage, show very odd effects. The greatest rarity, however, in the sparrow line was seen by the writer on January 19 when he, on the main street, at the noon hour, when the street was thronged with vehicles and pedestrians, saw in a flock of English Sparrows a beautiful red one. There was no mistake, he was nearly at my feet, as fearless as his fellows, behaving and feeding the same way. Nor was the red over only a small area or

of an indistinct hue, but very bright and general. Below the red was that of a male Pine Grosbeak and above like that of an American Crossbill. The wings and tail were like the common English Sparrow's, as were also the size and shape. The bird was twice seen afterwards by interested people.

Finally, a Meadowlark (*Sturnella magna*) was seen January 10 on the rifle-range, a fact quite as unusual as the wintering here of the Robins.

It is clear from the foregoing that we were unusually well supplied with birds during last winter. Yet it is safe to say that the same or a similar combination of birds, from the north and south, will probably not be seen for many years to come. It is clear to the writer that the meteorological conditions of last winter must have been very abnormal, hence these unusual wanderings and stayings of birds. In fact, indications seem conclusive to me, that many birds seem to be shifting their range of distribution, as witness the coming in here for the first time of birds like the Grasshopper Sparrow, Prairie Warbler, King Eider, etc.

TWO NEW SUBSPECIES OF NORTH AMERICAN BIRDS.

BY LOUIS B. BISHOP, M. D.

Numenius americanus parvus subsp. nov.

CANADIAN CURLEW.

Type.—♂ adult, No. 15743, Coll. of Louis B. Bishop; Crane Lake, Saskatchewan, June 23, 1906; L. B. B.

Subspecific characters.—Smaller than *N. a. americanus*, with much shorter bill.

Summer range.—Eastern British Columbia, Alberta, Saskatchewan, and Manitoba, south to eastern Washington, Wyoming, and South Dakota.

Measurements of type.—Length, 19.19; extent 36.00; wing, 10.19; tail, 4.48; exposed culmen, 4.15; tarsus, 2.92 inches.

For some years I have been confident that the Long-billed Curlew of western Canada was subspecifically distinct from the

Measurements of Breeding Birds in Inches.

Locality.	No. measured.	Sex.	Wing.	Tail.	Exposed Culmen.	Tarsus.
Western Canada	7	♂	10.19(9.98-10.28)	4.42(4.14-4.60)	4.77(4.15-5.70)	2.90(2.75-3.18)
Southwestern U. S.	3	♂	11.01(10.56-11.06)	4.74(4.30-5.05)	5.80(5.48-6.11)	3.39(3.07-3.56)
Wyoming and S. Dakota	3	♂	10.39(10.37-10.44)	4.68(4.44-4.87)	4.86(4.76-4.96)	2.91(2.80-3.01)
Western Canada	3	♀	10.49(9.90-10.81)	4.37(4.11-4.57)	5.78(4.65-6.39)	3.15(2.87-3.47)
Southwestern U. S.	3	♀	11.26(10.56-11.63)	4.94(4.66-5.34)	7.71(6.53-8.63)	3.48(3.28-3.60)
Atlantic Coast	3	♀ ¹	11.64(11.44-11.97)	5.02(4.87-5.15)	7.40(6.80-7.83)	3.52(3.34-3.69)
Wyoming	1	♀	10.69	4.26	6.72	3.36

¹ One, a spring female from New York; the others, from New Jersey and Virginia, but without sex and exact date.

form breeding in Texas, New Mexico and Arizona, being considerably smaller with much shorter and more slender bill; but the fact that both forms occur in our Southwest and in Mexico in the migration and in winter has made the demonstration difficult, since the majority of specimens in collections from these latter localities were not taken during the breeding season. However, by the aid of the series in the American Museum of Natural History and the collection of Dr. Dwight, I have been able to find enough probably breeding birds to show the marked difference in size that exists between northern and southern birds. Breeding birds from Wyoming and South Dakota, though intermediate, are nearer the northern race, while the only specimen from California I have seen — taken in January — is referable to the southern bird. On the Atlantic coast the Long-billed Curlew is now practically extinct, and there are very few specimens of it preserved in collections, but the three I have measured so manifestly belong to the southern race that there can be no doubt to which *N. longirostris* Wilson applied, even if Wilson had not stated "the bill is eight inches long." Dr. Woodhouse's *N. occidentalis* having been collected in "New Mexico, upon the Rio Grande," before August 1, on which date Sitgreave's expedition left this point for further west, was evidently the young of *N. a. americanus*. *Numenius americanum* Bechstein also being based on a bird from the Atlantic coast leaves the northwest form without a name, and I have called it *parvus* because of its small size.

As we already have the "Eskimo" and "Hudsonian" Curlews, "Canadian" and "American" would seem appropriate English names for the races of *N. americanus*.

***Molothrus ater dwighti* subsp. nov.**

NORTHERN COWBIRD.

Type.— ♂ adult, No. 15759, Coll. of Louis B. Bishop; Crane Lake, Saskatchewan, June 24, 1906; L. B. B.

Subspecific characters.— Similar to *Molothrus ater ater*, but considerably larger and with more slender bill.

Summer range.— Saskatchewan to North Dakota.

Measurements of type.— Length, 8.69; extent, 14.44; wing, 4.61; tail, 3.51; culmen, .76; bill from nostril, .53; depth of bill at base, .48; tarsus, 1.13 inches.

Measurements of Breeding Birds in Inches.

Locality.	No. measured.	Length.	Extent.	Wing.	Tail.
		<i>Adult Males.</i>			
Saskatchewan	9	8.19(7.75-8.69)	13.98(13.62-14.44)	4.54(4.43-4.62)	3.28(3.15-3.51)
North Dakota	7	7.99(7.50-8.25)	13.71(13.50-14.25)	4.31(4.21-4.50)	3.27(3.00-3.56)
Connecticut	8	7.72(7.25-8.00)	13.37(13.25-13.56)	4.27(4.13-4.44)	3.17(3.06-3.42)
		<i>Adult females.</i>			
Saskatchewan	4	7.37(7.25-7.44)	12.43(12.12-12.62)	3.96(3.89-3.99)	2.91(2.87-2.94)
North Dakota	2	7.47(7.31-7.62)	12.62(12.50-12.75)	4.07(4.00-4.14)	2.88(2.82-2.95)
Connecticut	8	7.15(7.00-7.25)	12.21(11.87-12.50)	3.85(3.71-3.98)	2.78(2.64-2.94)
		<i>Adult males.</i>			
		Culmen.	Bill from Nostril.	Depth of Bill at Base.	Tarsus.
Saskatchewan	9	.74(.73-.76)	.49(.48-.53)	.49(.48-.53)	1.13(1.06-1.20)
North Dakota	7	.73(.69-.75)	.49(.47-.52)	.48(.45-.51)	1.13(1.07-1.19)
Connecticut	8	.70(.63-.74)	.47(.43-.50)	.51(.45-.53)	1.05(.99-1.09)
		<i>Adult females.</i>			
Saskatchewan	4	.66(.65-.68)	.44(.40-.46)	.45(.42-.48)	1.03(1.00-1.06)
North Dakota	2	.68(.67-.69)	.42(.40-.44)	.43(.42-.44)	1.04(1.04-1.05)
Connecticut	8	.67(.64-.72)	.40(.38-.43)	.46(.42-.49)	.96(.93-1.04)

The Cowbird breeding in Saskatchewan is considerably larger than that frequenting our Eastern States, as is shown by the subjoined measurements of breeding birds. The bird breeding in eastern North Dakota is intermediate, but somewhat nearer that in Saskatchewan. The bird inhabiting Alberta, Manitoba, and northern Montana is doubtless the northern race, but I have not seen specimens from those localities.

As *Fringilla pecoris* Swainson was based on "The Cowpen Bird" of Catesby, and *Oriolus fuscus* Gmelin and *Oriolus ater* Boddaert on birds taken in New York, neither name can be applied to the unrecognized race. Therefore I have taken the liberty of calling it after my friend, Dr. Jonathan Dwight, Jr., though giving a proposed subspecies his name is but a poor tribute to his ornithological ability, knowledge and zeal.

THE INCREASE OF AUSTRAL BIRDS AT ITHACA.

BY ALBERT H. WRIGHT AND ARTHUR A. ALLEN.

SITUATED at the head of Cayuga Lake, Ithaca lies about midway between the Susquehanna basin and the Austral territory along the south shore of Lake Ontario. To the south, the Inlet and Six Mile Creek Valleys lead to the divide and have their origins in the same marshes with the headwaters of the Susquehanna. To the north, Cayuga Lake and the Seneca River form a natural highway to this Lake Ontario strip. This area, due to the isolating Transition and Canadian territory to the south, undoubtedly receives its Austral birds from those migrating up the Mississippi Valley. Thus it is possible for Austral forms appearing at Ithaca to be either coastal species working their way up the Susquehanna or Mississippi birds coming down Lake Cayuga from the north. With certain birds the direction of invasion seems quite apparent, with others, it is difficult or impossible to state with certainty.

The purpose of this paper, however, is not so much to determine the probable route of migration as to show the encroachment of Austral forms within recent years and their remarkable appearance

in this spring's (1909) migration. For during the last ten years of careful migration studies at Ithaca, no one phenomenon has arrested more attention than this gradual extension of Austral birds into our fauna. And inasmuch as there seems to be similar invasions taking place elsewhere,¹ we thought it well to call attention to such data as has been collected at Ithaca.

Since 1850, the following Austral species have been recorded, the accompanying list indicating the distribution and the number of records or relative abundance of each form.

Species	North end 1850-1909	South end	
		1850-1908	1909
American Egret	2		
Glossy Ibis	9		
Whooping Crane	1		
Dickcissel	1		
Golden-winged Warbler	6		
King Rail	not uncommon summer resident	1	
Florida Gallinule	common summer resident	2	3 pairs nested
Hooded Warbler	resident	rare migrant	rare migrant
Purple Martin	"	"	"
Cerulean Warbler	"	"	"
Turkey Vulture	1	1	
Red-bellied Woodpecker	1	3	
La. Water-Thrush	not common	common	common
Rough-winged Swallow	fairly common	"	"
Carolina Wren		2 pairs	
Barn Owl	3	7	
Orchard Oriole	2	5	2
Grasshopper Sparrow		uncommon	common
Chewink		"	not uncommon
Yellow-breasted Chat		"	"
Worm-eating Warbler			1
White-eyed Vireo			1
Tufted Titmouse			1
Prothonotary Warbler			1

¹ Trotter, Spencer. The Geological and Geographical Relations of the Land-Bird Fauna of Northeastern America. Auk, Vol. XXVI, July, 1909, pp. 221-233.

Townsend, Chas. W. A Carolina Wren Invasion of New England. Auk, Vol. XXVI, July, 1909, pp. 263-269.

From this table it may be seen that certain forms which have appeared at the north end or even established themselves there have, as yet, either not reached the south end or, with one exception, occur there only as rare migrants. This exception, the Florida Gallinule, previous to 1909, had been recorded at Ithaca but twice. This year at least three pairs nested. Other species are of about equal distribution at both ends and still others, notably those showing marked increase of late years, are more abundant at the south than at the north end.

Of these, the Barn Owl and Orchard Oriole, although manifesting no decided influx during 1909, have undoubtedly been on the increase during the past decade. Our first record of the Barn Owl at this end of the lake was at the divide, Dec. 1, 1904. In 1907 at Ithaca, four more were taken and in 1908, one at Ithaca, June 6, and another at the divide, Nov. 27. The first Orchard Oriole at Ithaca was recorded May 3, 1890. An interval of 12 years elapsed before the second record in 1902 when a pair was recorded June 7. None were then seen until 1908, when a pair nested in the Inlet Valley just south of Ithaca. This pair returned this spring (1909).

More pronounced than the above, however, has been the increase of Grasshopper Sparrows, Chewinks and Yellow-breasted Chats, especially during 1909. The Grasshopper Sparrow, though previously never rare, became this year very abundant along South Hill on the east side of the Inlet Valley. The Chewink, formerly an uncommon but regular summer resident, during the last two or three years has become almost common. The Chat, previous to 1900 was of very unusual occurrence; from 1900 to 1902, one pair was seen; from 1903 to 1905, two pairs each year; in 1906 and 1907, 3 or 4 pairs; in 1908, 5 or 6 pairs, and in 1909, along the Inlet Valley alone, 8 to 12 pairs nested. The increase of these birds has been particularly marked over an area formerly heavily forested with pine,—a condition not unlike that reported ¹ directly south of us in the Susquehanna Valley (Luzerne and Sullivan Cos., Pa.), where the Chewink and Chat have likewise increased.

Previous to 1909, the last four species mentioned in the list had not been recorded in our fauna:—May 6, the Worm-eating War-

¹ Auk, Vol. XXVI, July, 1909, pp. 229-230.

bler was taken on the Cornell Campus; May 30, the White-eyed Vireo in the Inlet Valley; May 31, the Tufted Titmouse at the divide; and June 12, at the head of the Lake, the Prothonotary Warbler.

Thus we have four Austral species simultaneously invading a region previously unknown to them and at the same time, an increasing abundance in the Austral forms already resident. The direction of this invasion has been undoubtedly from the south by way of the Susquehanna but speculations as to the reasons ought not to be given until it is determined whether this movement is general or purely local. Before these can be formulated, the coöperation of other observers is necessary and it is with this in view that we have submitted our data from Ithaca.

NOTES ON SOME OHIO BIRDS.

BY W. F. HENNINGER.

Plate VI.

1. **Florida cærulea.** LITTLE BLUE HERON.—On August 16, 1909, a young male in the white plumage with the slaty primary tips was shot at the Loramie Reservoir in Shelby County, Ohio, and is now in my collection. Since July 2, 1902, when I recorded this bird for the last time in southern Ohio (Auk, Vol. XIX, October, 1902, p. 396) no other specimens seem to have been recorded from the State. The above mentioned specimen is the eleventh one I have recorded in Ohio since August, 1901, more than any other ornithologist has seen in the State and more than all the other records put together.

2. **Hydrochelidon nigra surinamensis.** BLACK TERN.—This bird, which I found nesting in the Sandusky Bay marshes in 1903, 1904, and 1907, and which Dawson and Jones found plentifully in August, 1902, along the Ohio River, is a rare migrant in middle western Ohio. Three were seen April 19, 1909, one on May 14, 1908, and a young male was shot on August 31, 1909, at the Grand Reservoir. They evidently make two broods in the Sandusky Bay



NEST AND SEVEN EGGS OF KING RAIL. JUNE 22, 1909, GRAND RESERVOIR, OHIO.



NEST AND TEN EGGS OF KING RAIL. JUNE 5, 1909, GRAND RESERVOIR, OHIO.



marshes, as the writer saw young barely able to fly on July 4, 1907, and at the same time collected fresh eggs.

3. ***Calidris leucophæa***. SANDERLING.—While seen regularly along the shores of Lake Erie, this species is rare inland. On September 24, 1909, I saw a flock of 50 at the Grand Reservoir and shot 6 of them, 4 females and 2 males. A note in the October 'Auk,' 1909, shows that it is very rare even in the vicinity of Detroit.

4. ***Charadrius dominicus***. GOLDEN PLOVER.—In the fall of 1908 I was able to record this species in 'The Auk' as taken at the Loramie Reservoir. On April 19, 1909, I saw a flock of 25 at the Grand Reservoir and on September 24, 1909, shot a large female from a flock of 9 at the same place and again a male on October 16, 1909, at the Loramie Reservoir. Hence this species, which seems to be becoming very rare in many localities, is still a regular migrant across this part of Ohio, which is "close to the major axis of its elliptical orbit."

5. ***Phalacrocorax auritus***. DOUBLE-CRESTED CORMORANT.—A fine female of this species, in first winter plumage, was shot October 16, 1909, at the Loramie Reservoir and is now in my collection.

6. ***Ixobrychus minutus***. LEAST BITTERN.—To the breeding places of this species in Ohio, enumerated in Jones's Catalogue of Ohio birds, must now be added the Grand Reservoir, where at one particular locality it is a common breeder.

7. ***Rallus elegans***. KING RAIL.—This species, seen in 1908, was found as a breeder at the Grand Reservoir in 1909 on June 5. Six nests were found on this date at a locality which I shall not disclose. Two sets of 11 eggs were found, the two nests being well out in the cattails, and one of 10 eggs, about 50 feet away from water in plain view in the grass. A fourth nest contained 2 eggs and one young and while looking at the third egg I noticed a small hole and soon had the chance to see a young Rail chick's bill pecking away at its inclosure. The chick kept up a constant pecking and calling with a shrill voice *pēep pēep*, till the one half of the egg, the more pointed end, dropped away. The blackish little creature showed some traces of blood and seemed to have a hard time to free itself from the membrane, and it took considerable time till it had extricated itself from the other half of the egg, the whole process oc-

cupying perhaps 16 to 20 minutes. Then it shuffled down to its brother and laid there gaping from time to time, where I left it after having seen one of the most interesting phases of wild bird life.

The various notes of the adults were noted as follows: *Kěrplůnk* as they dropped into the cattails out of the air; *kěk, kěk, kěk-kěkkěk* when running back and forth in the grass; and a noise similar to the grating note of the Corn Crake, which I heard so often in Europe in former years.

On June 22, 1909, a beautiful domed nest was found in a tussock of grass, containing 7 eggs. The photograph plainly shows on the northeast the inclined approach, a fact which is stated in the books to be contrary to the Rail fashion and characteristic of the Coots and Gallinules only. A photograph of a Rail standing in the Cattails was also taken but owing to the vibration of the wings is blurred and not fit for reproduction.

8. *Haliaeetus leucocephalus*. BALD EAGLE.—This bird, which breeds at the Lewistown Reservoir, was also found breeding at the Grand Reservoir in the summer of 1909.

Of breeding ducks we have here the Wood Duck, and occasionally the Blue-winged Teal, which also breeds at the Sandusky Bay. In southern Ohio I was able to record the Mallard as a rare breeder, while on July 2, 1907, I met in the Black Channel Marshes at Cedar Point, Ohio, a female Lesser Scaup Duck (*Marila affinis*) leading her brood of nine young not far from a similar family of Coots. This seems to be the limit in Ohio breeding ducks and proves that, although explored for years, there is still many a new thing to be found out about the birds in the old "Buckeye State."

TWENTY-SEVENTH STATED MEETING OF THE AMERICAN ORNITHOLOGISTS' UNION.

THE Twenty-seventh Stated Meeting of the American Ornithologists' Union convened in New York City, Monday evening, December 6, 1909. The business meeting and public sessions, December 7, 8 and 9, were held at the American Museum of Natural History.

BUSINESS SESSION.—The meeting was called to order by the President, Mr. Edward W. Nelson. Seventeen Fellows were present. The Secretary's report gave the membership of the Union at the opening of the present Stated Meeting as 866, constituted as follows: Fellows, 48; Honorary Fellows, 14; Corresponding Fellows, 62; Members, 71; Associates, 671.

During the year the Union lost eighty-five members, five by death, thirty-three by resignation, and forty-seven by non-payment of dues. The deceased members were all Associates, as follows: Wm. L. Kelker, who died Feb. 15, 1908; Edward Seymour Woodruff,¹ who died in New York City, January 15, 1909, aged 33 years; Charles K. Worthen,² who died at Warsaw, Illinois, May 30, 1909, in the 59th year of his age; William H. Brownson,³ who died at South Portland, Me., Sept. 6, 1909, in the 55th year of his age; and Wm. Hubbell Fisher, who died Oct. 6, 1909, aged 66 years.

The report of the Treasurer showed the finances of the Union to be in a satisfactory condition.

All of the officers were re-elected, as follows: Edward W. Nelson, President; Frank M. Chapman and A. K. Fisher, Vice-Presidents; John H. Sage, Secretary; Jonathan Dwight, Jr., Treasurer; Ruthven Deane, William Dutcher, Henry W. Henshaw, F. A. Lucas, Chas. W. Richmond, Thomas S. Roberts, and Witmer Stone, members of the Council.

Arthur Cleveland Bent, of Taunton, Mass., was elected a Fellow; Allan Brooks, Okanagan Landing, B. C.; Bradshaw H. Swales, Grosse Isle, Mich.; Harry S. Swarth, Berkeley, Calif., and Percy

¹ For an obituary notice, see *Auk*, XXVI, pp. 218, 219.

² For an obituary notice, see *Auk*, XXVI, p. 332.

³ For an obituary notice, see *Auk*, XXVI, p. 453.

A. Taverner, Highland Park, Mich., were elected to the class of Members, and the following one hundred and twenty-one persons were elected Associates, namely:

Gerald Alan Abbott, Chicago, Ill.; Arthur A. Allen, Ithaca, N. Y.; Henry Allison, Fitchburg, Mass.; F. E. Arnold, East Providence, R. I.; Samuel W. Bailey, W. Newbury, Mass.; Harold L. Barrett, Jamaica Plain, Mass.; Franklin Benner, Minneapolis, Minn.; Annie H. Brown, Stoneham, Mass.; S. Jennie Berry, London, Ontario; Miss Charlotte Bogardus, Cossackie, N. Y.; Benjamin F. Bolt, Kansas City, Mo; Mrs. Ella J. Boudinot, Davenport, Iowa; John J. Boyce, Juneau, Alaska; John B. Brainerd, M. D., Brookline, Mass.; William J. Brown, Westmount, Quebec; John A. Bryant, Kansas City, Mo.; Mrs. Arthur E. Clarke, Manchester, N. H.; Annie W. Cobb, Arlington, Mass.; William C. Clarke, M. D., New York, N. Y.; William B. Cleveland, Burton, Ohio.; Stanley Cobb, Milton, Mass.; Ernest Amery Codman, Boston, Mass.; James M. Cole, Woodstock, Ontario; Lee S. Crandall, New York, N. Y.; Henry C. Davis, Cummaquid, Mass.; Frederick B. Day, Lynn, Mass.; John Dearborn, Malden, Mass.; William Dearden, Springfield, Mass.; Lee Raymond Dice, Prescott, Wash.; Charles W. Dimick, Boston, Mass.; Joseph H. Dodson, Chicago, Ill.; James L. Du Bon, Windsor Locks, Conn.; Miss Harriet A. Dunn, Athol, Mass.; Francis B. Eastman, Fort Benjamin Harrison, Ind.; Miss Mary S. Eaton, Concord, Mass.; Dr. Ernest Earl Elliott, Lyons, N. Y.; Christopher T. Emmet, Long Island, N. Y.; J. F. Frazier, Audubon, Iowa; Leonard Freeman, M. D., Denver, Colo.; Mrs. Ella M. Fuller, Needham, Mass.; Frederick M. Gaige, Ann Arbor, Mich.; William Glück, Plainville, Conn.; Mrs. James F. Goodell, Rhinebeck, N. Y.; William J. Graham, Aledo, Ill.; Mrs. Henry Tyler Grant, Providence, R. I.; L. M. Grombergh, Washington, D. C.; Dr. B. A. Hamilton, Highland Park, Ill.; Arthur W. Henn, Chicago, Ill.; Luman J. Hersey, Denver, Colo.; Isaac E. Hess, Philo, Ill.; Ashley Hine, Banff, Canada; A. Brazier Howell, Baltimore, Md.; Walter J. Hoxie, Savannah, Ga.; Miss Annie S. Hoyt, Oyster Bay, L. I.; Frank N. Irving, Savannah, Ga.; Mrs. I. M. James, Doylestown, Pa.; McCormick Jewett, New Haven, Conn.; C. A. Jones, Memphis, Tenn.; A. H. Kilman, Ontario, Canada; Miss Jessie E. Kloseman, Dedham, Mass.; Roland E. Kremers, Madison, Wisc.; Dr. Avery E. Lambert, Framingham, Mass.; Mrs. James H. Lancashire, Alma, Mich.; Lawton W. Lane, Lynn, Mass.; Edgar M. Ledyard, Los Banos, P. I.; H. E. Lee, Pierre, So. Dak.; Frederic T. Lewis, M. D., Boston, Mass.; A. C. McFarland, Chicago, Ill.; Charles W. Miller, Shawnee-on-Delaware, Pa.; John K. Musgrave, Allegheny, Pa.; Frank O. Novy, Ann Arbor, Mich.; Dr. Frank Overton, Patchogue, L. I., Mrs. Benjamin W. Parker, Dorchester Center, Mass.; William Parsons, Manila, P. I., Morton E. Peck, Salem, Oregon; W. M. Peck, East Providence, R. I.; Henry J. Perry, Boston, Mass.; George A. Phillips, Dedham, Mass.; Frank O. Pillsbury, Walpole, Mass.; Miss Ellen J. Pond, New York, N. Y.;

Charles H. Pratt, Chelsea, Mass.; Wm. Raborg, Jr., Muirkirk, Md.; Chas. S. G. Rankin, St. George's, Bermuda; John C. Rembold, Hackensack, N. J.; Alfred G. Rolfe, Pottstown, Pa.; Percival B. Rolfe, Portland, Me.; Gilbert R. Rossignol, Jr., Savannah, Ga.; John Lee Saltonstall, Beverly, Mass.; Leonard G. Sanford, New Haven, Conn.; Aug. E. Sanvola, Chassell, Mich.; Henry R. Scott, Framingham, Mass.; Edwin Shore, Pawtucket, R. I.; John A. Sinclair, New Hampton, N. H.; Ethel M. Smith, Stevens Point, Wis.; Prof. Frank Smith, Urbana, Ill.; Myrton T. Smith, Hartford, Conn.; Mrs. Ruth Cook Smith, Woodcliff Lake, N. J.; Wilbur F. Smith, South Norwalk, Conn.; Mrs. Etta Rich Soule, Watertown, Mass.; Miss Cordelia Johnson Stanwood, Ellsworth, Maine; T. C. Stephens, Sioux City, Iowa; Ernest M. Stokes, Minesing, Ontario; John K. Strecker, Jr., Waco, Texas; D. D. Streeter, Washington, D. C.; Z. T. Sweeney, Columbus, Indiana; Chas. S. Thompson, San Bernardino, Calif.; Miss Harriet W. Thompson, Port Sanilac, Mich.; Thomas M. Trippe, Howardsville, Colo.; Prof. Frank D. Tubbs, Lewiston, Maine; Henry E. Tuttle, Lake Forest, Ill.; Albert G. Ulrich, St. Louis, Mo.; Miss Louise van Beuren, New York, N. Y.; Stephen S. Visser, Tucson, Arizona; George E. Walker, Murray, Utah; Mrs. Martha E. Ward, Lynn, Mass.; John R. White, Manila, P. I.; Henry H. Wikel, Brooklyn, N. Y.; Frank C. Willard, Tombstone, Ariz.; Victor John A. Willett, Wydecombe, Whiteman's Creek P. O., British Columbia; Francis Windle, West Chester, Pa.; John W. Winson, Sumas, Wash.

Drs. Allen, Dwight, Merriam and Richmond, and Messrs. Brewster, Ridgway, and Stone were re-appointed 'Committee on Classification and Nomenclature of North American Birds.'

Drs. A. K. Fisher, Edgar A. Mearns and Thomas S. Roberts, and Messrs. F. M. Chapman and Ruthven Deane were appointed 'Committee on Bird Protection.'

The amendment to the By-Laws proposed at the last Stated Meeting of the Union was adopted. Article III, Section 1, now reads as follows:

"Stated Meetings of the Union shall be held annually, at such time and place as the Union may determine. The time and the place for any Stated Meeting, appointed by the Union, may be changed by the Council by a two-thirds vote of its members. Special meetings shall be called by the Council as occasion may require, due notice thereof being given by the Secretary."

PUBLIC SESSIONS. *First Day.*—The meeting was called to order by the President, Mr. Nelson. The papers read during the morning session were as follows:

'In Memoriam — Charles Aldrich,' by Ruthven Deane.

'At the Sign of the Northern Flicker,' by Miss Althea R. Sherman. Remarks followed by Dr. Merriam.

'The Increase of Austral Birds at Ithaca, N. Y.,' by Dr. Albert H. Wright and Arthur A. Allen; presented by Mr. Allen and illustrated by lantern slides.

'Sharpe's Hand-List of Birds,' by Dr. J. A. Allen.

'Development of the Flicker,' by Wm. L. Baily. Illustrated by lantern slides.

Dr. Merriam gave an account of the recent discovery of the skulls and bones of several species of birds in the asphalt beds near Los Angeles, Calif., including a gigantic bird of prey, and other species undoubtedly new to science.

The papers of the afternoon, both illustrated by lantern slides, were:

'Response of Wild Birds to Kindness,' by Rev. Herbert K. Job.

'A Bird Photographing Trip in the Carolinas,' by B. S. Bowdish.

In the evening an informal reception was held at the American Museum of Natural History, tendered by the Board of Trustees and Officers of the Museum.

Second Day.—The meeting was called to order by President Nelson. The papers of the morning session were:

'In Memoriam — James Cushing Merrill,' by William Brewster.

'The Tagging of Wild Birds. Report of Progress in 1909,' by Dr. Leon J. Cole. Remarks followed by Mr. Rhoads, Dr. Bishop, and the author.

'Some Notes on the Pinnated Grouse of Martha's Vineyard, Mass.,' by Dr. Geo. W. Field. In the absence of the author it was read by Mr. E. H. Forbush. Illustrated by lantern slides.

'Birds of the Blackwater River, Va.,' by George Spencer Morris. Illustrated by lantern slides.

'The Delaware Valley Ornithological Club — A Retrospect, and a Prospectus,' by Witmer Stone.

The following papers were presented at the afternoon session:

'Changes of Geographical Distribution in the Lake Erie Basin,' by Prof. Lynds Jones. Remarks followed by Ernest Thompson Seton, and Ruthven Deane.

'Racket Formation in the Tail-feathers of the Motmot,' with exhibition of skins and a living specimen, by C. Wm. Beebe.

'Notes on an Expedition to British Guiana,' by C. William Beebe. Illustrated by lantern slides.

'Present Status of the Passenger Pigeon Problem,' by Prof. C. F. Hodge. Remarks followed by Messrs. Forbush, Dutcher, and the author.

'Courtship and Wedlaw of Certain Wild Fowl,' by Ernest Thompson Seton. Remarks followed by Prof. Hodge, Mr. Beebe, and the Chair.

Mr. A. R. Dugmore showed lantern slides of a few of the remarkable pictures he had taken during his recent trip to East Africa.

In the evening the members of the Union and their friends met at dinner at the Hotel Endicott.

Third Day.—The meeting was called to order by President Nelson.

The Chair read a letter from C. William Beebe having special reference to locating, if possible, living specimens of the Passenger Pigeon, *Ectopistes migratorius*.

The papers of the session were:

'Notes concerning the Status of Franklin's Grouse, with Exhibition of Specimens,' by Louis Agassiz Fuertes.

'The Method of Migration Study at Cornell,' by Dr. A. H. Wright and A. A. Allen, presented by Mr. Allen. Illustrated by lantern slides. Remarks followed by Mr. Stone.

'The Willow Grouse of Scandinavia, with Exhibition of Specimens,' by Dr. Jonathan Dwight, Jr.

'The Status of some North American Species of Birds,' by Drs. L. B. Bishop and Jonathan Dwight, Jr. Presented by Dr. Bishop. Remarks followed by Mr. Fuertes.

The following papers, in the absence of their authors, were read by title:

'Statistical Distribution of the Common Birds of Illinois,' by Alfred O. Gross.

'Common Birds in Northeastern Illinois,' by Frank C. Gates.

'On the Extinction of Birds in this Country,' by Dr. R. W. Shufeldt.

Dr. L. B. Bishop explained a proposed method of Tagging Wild Birds, and called attention to an Association in Connecticut recently organized to study this subject.

Dr. Dwight exhibited specimens of the Motmot and referred to the peculiar formation of the tail-feathers. Remarks followed by Messrs. Chapman and Dutcher.

The following resolution was passed.

Resolved: That the American Ornithologists' Union heartily approves of H. R. 10276, introduced in Congress May 28, 1909, by the Hon. Mr. Weeks of Massachusetts, entitled 'A Bill to protect Migratory Birds of the United States,' for the reason that the Union recognizes the difficulty of obtaining uniform and satisfactory legislation for migratory birds from State legislatures, and it further believes that all birds which do not remain permanently the entire year within the borders of any State or Territory are logically the wards of the nation and should be placed in the care of the United States Department of Agriculture.

Resolutions were adopted thanking the President and Trustees of the American Museum of Natural History for a place of meeting, and for other courtesies tendered to the Union; to the Linnæan Society of New York for generous hospitalities extended to the Union during the Twenty-seventh Stated Meeting; to the Executive Committee of the New York Zoölogical Society for their courteous invitation to visit the Zoölogical Park and the Aquarium of the Society; and to the Executive Committee of the Brooklyn Institute of Arts and Sciences for their kind invitation to visit the Museum of the Institute, and for other courtesies extended.

After adjournment on Thursday, December 9, a visit was paid to the Brooklyn Institute of Arts and Sciences, and the members of the Union were welcomed to the Institute by Dr. Frederic A. Lucas, Curator-in-Chief. An opportunity was thus given to view the collections in the Museum, which was followed by an informal gathering in the Library, where refreshments were served.

On Friday, December 10, upon invitation of the New York Zoölogical Society, many members visited the Aquarium and the New York Zoölogical Park. They were received by Director Townsend and Curator Beebe.

On Saturday an all-day excursion was made to the Lower Bay and ocean off Sandy Hook to see at close range the large flocks of Gulls gathered there.

The next meeting of the Union will be held in Washington, D. C., the date to be determined later.

JNO. H. SAGE,
Secretary.

GENERAL NOTES.

The Brown Pelican in Illinois.—The writer is indebted to his friend and correspondent, Hon. R. M. Barnes of Lacon, Marshall County, Ill., for the facts concerning the following and to whom credit is due for giving us the first authentic record for the State, our evidence of this bird's occurrence within our borders having rested solely heretofore on the rather insufficient data furnished by C. K. Worthen of Warsaw (see Ridgway in Bull. Nutt. Ornith. Club, Vol. V, 1880, p. 31), who reported having seen one at Lima Lakes, ten miles below that place, in October, 1873.

He informs me that on May 27, 1903, a specimen of *Pelecanus fuscus* was killed off of one of the bridge-protection piers in the Illinois River at Lacon, by a local hunter or fisherman of the town, and brought to him for identification. (See Blatchley in 'The Auk,' 1907, Vol. XXIV, p. 337, for further evidence of the wandering of this maritime species far inland.)—**BENJ. T. GAULT**, *Glen Ellyn, Ill.*

A New Bird for Illinois.—While passing through Burlington, Iowa, recently, I saw a mounted Man-o'-war-bird (*Fregata aquila*) in a store window. Upon inquiry I was told that the bird was killed in the spring of 1904. It was first noticed by some hunters as it flew along the Illinois shore of the Mississippi, who shot at it, when it turned and flew across the river into the heart of the city of Burlington where it struck an electric light wire and fell into the street. The next day it died and the man who picked it up had it mounted and exhibited in his window. This is the first record for Illinois and also for Iowa, as far as I know.—**HENRY K. COALE**, *Highland Park, Ill.*

The Black Duck Summering near Philadelphia.—We find the Black Duck (*Anas rubripes*) given in Stone's 'Birds of Eastern Pennsylvania and New Jersey,' in the list of birds found within 10 miles of Philadelphia (page 31), as a "species which occurs occasionally in winter, but are mainly transients"; yet there are subsequent records enough of its occurrence in summer on the Delaware River and its tributaries to enable us to regard it as a probable rare breeder, although no nests have been actually found.

The following records constitute all my knowledge of its occurrence in summer in this region, and they are all authentic as far as observation goes. Moreover, it is an impossibility for *all* of these birds to have been barren or wounded individuals, and surely none were belated transients or stragglers.

I have two summer records: on June 17, 1899, one was flushed on the Pensauken Creek at West Palmyra, N. J., and two were seen on May 27, 1903, at Bristol, Bucks County, Pa., flying down the river along Burlington Island.

My brothers have had better luck. On June 21, 1908, Mr. C. S. and G. E.

Miller observed one on the Delaware River at Essington, Delaware County, Pa.; on July 26, 1908, George noted 3 on the river behind the dyke at Fish House, Camden County, N. J., and on July 26, 1909, he saw a pair at Lardner's Point, also on the Delaware, and near Riverton, Burlington County, N. J.

At Essington, where my brothers saw one, Dr. J. P. Ball, of Frankford, Philadelphia, saw a pair in June, 1908, and a reliable resident of that place told him that Black Ducks occur on the river meadows there all summer, and was of the opinion that they bred sparingly in them. Near this locality, at Tinicum, Delaware County, Mr. L. I. Smith has seen them as late as May 15, 1902.

Reliable gunners have also informed me of this bird's occurrence in summer on the Tinicum marshes, where it is undoubtedly a rare breeder.

In his excellent paper, 'A Pensauken Diary,' published in 'Cassinia,' XI, 1907, Mr. C. J. Hunt mentions having seen one, as follows (page 49): "July 9 (1907).—Flushed a Black Duck on the upper creek. Can this bird nest among these marshes?"; and in the same paper (page 51) he includes it in his list of 'Summer Residents of the Pensauken Creek,' probably on the ground of seeing the foregoing bird.

However, the Black Duck is undeniably a rare summer resident on the upper part of this creek and I have the assurance of reliable farmers and gunners of its regular occurrence in summer upon it. It behooves the ornithologist to confirm these reports by finding a nest, but unfortunately the ardor of our ornithologists is deteriorating as regards swamp and marsh nest-hunting and it may be years before any of them will succeed in discovering a nest.—RICHARD F. MILLER, *Harrowgate, Philadelphia, Pa.*

Ducks at Monroe, Michigan.—Possibly some of the readers of 'The Auk' are not aware that the range of the Black Duck seems to be extending steadily westward, and to demonstrate this fact I quote some statistics from the score book of a Duck Club at Monroe, Michigan, at the western end of Lake Erie. Those who shot there from 1865 to 1880 tell me that the taking of a Black Duck was then so uncommon as to be a matter of comment. These figures are the percentages of Black Ducks to the aggregate number of Black and Mallard taken, fractions omitted.

1885...6%	1891...24%	1897...13%	1903...48%
6...7	2...12	8...21	4...40
7...14	3...7	9...9	5...33
8...14	4...8	1900...20	6...37
9...17	5...11	1...6	7...49
1890...20	6...14	2...10	8...41

This percentage increase in the Black Ducks is not due to any diminution in the number of Mallards, they being as abundant now as twenty years ago. There has, however, been a diminution in the annual take of late years, due to several causes: Fewer gunners through a reduction in the club's membership; the daily bag limit law enacted in 1905; and the fact

that Canvasbacks have so increased in numbers that marsh shooting is neglected for the bay. All of these causes, however, operate to reduce alike the take of Black Ducks and Mallards, both varieties being shot in the same ponds on the marshes. The Black Duck is also a warier bird and decoys less readily than any other species. Very few breed, but begin to arrive early in September, a week or ten days ahead of the Mallards, and remain to feed on the wild rice until winter sets in.

While all ducks seem to have increased in numbers of late years, the Canvasback is the most notable example. It has always in numbers frequented the celery bays, but commencing with 1902 it has been represented each autumn in most extraordinary numbers. During the past eight years — 1902 to 1909 — the number taken at the Club at Monroe, Michigan, is nearly three times as great as taken in the preceding eight years — 1894 to 1901, and this in view of the fact that during most of the later period the law has limited the daily bag to twenty-five, while in the earlier period there was no limit but conscience. There were, as stated before, also fewer gunners.

The first Canvasbacks arrive from the north about October 15 and remain until the first severe cold. In 1904 they were in such great numbers that after eating all the celery from the bay they frequented the larger ponds in the marsh, something not previously known to occur.— HAROLD HERRICK, *New York City*.

A Small Flight of Gadwalls (*Chaulelasmus streperus*) near New York.— Early in the morning of October 16, 1909, my young friends Allan and James Hand were watching at a pond on the salt marshes near Lawrence, L. I. About sunrise a flock of seven odd looking ducks circled the pond several times and finally six of them came to the decoys, four being shot. The boys remained an hour or so longer, seeing two or three more flocks that they felt sure were the same kind of duck, but none came near enough for positive identification. They brought the birds to me — to be identified as young Gadwalls, rather poor in flesh, their average weight being under twenty-four ounces. The best one I preserved.

My friend Col. Franklin Brandreth of Ossining, N. Y., tells me of a single specimen brought to him, that was killed near that place about October 29, 1909.

The marshes of Lake Erie are the nearest points to Long Island where the Gadwall is regularly found, and there they are not very common. The carefully kept record of a shooting club at the western end of the lake shows that in twenty-one years, to 1908, but one has been taken in each two hundred ducks, or about one-half per cent. of the total score. This year (1909), however, they were more abundant than usual, I personally securing eleven specimens, which is exactly the same number I have secured, in the aggregate, on the same marshes, during the previous eighteen years.— HAROLD HERRICK, *New York City*.

An Albino Duck.— On September 12, 1909, a hunter brought in a pure white duck which he had shot at Lake Traverse, near Wheaton, Minnesota, the day before. I examined the duck and could find no trace of a colored feather anywhere. The white was not pure white but slightly tinged with yellow and the legs were of a dull yellow color. The bird was the same size and shape as some Gadwalls which were in the string but it might have been a Widgeon, I could not absolutely say which. If the duck had not been so badly shot up and if the man, even at that, had not expressed his desire of having it mounted I should have tried to secure the specimen.— ALBERT W. HONYWILL, JR., *New Haven, Conn.*

Snow Geese in Framingham, Massachusetts.— I wish to report that on November 19, 1909, in Framingham, at 12.50 p. m., I observed, at close range, a flock of thirty or more Snow Geese flying very low towards me from northeast to southwest over open fields. Hearing the distant honking I had been prepared to see Canada Geese but to my amazement the birds were pure white with the tips of the primaries black. When first seen the birds were flying in a V and were very noisy. I observed the birds most carefully, noting their size and their curiously shaped, brightly colored bills. The birds were almost as large as Canada Geese and it is my belief that they were the Greater rather than the Lesser Snow Geese.— LIDIAN E. BRIDGE, *West Medford, Mass.*

Another Swan for Maine.— In the Ellsworth 'American' for April 1, 1908, appeared the following item: "A handsome bird, rare for this section, was brought to E. D. Brann, taxidermist at Ellsworth today. It is a wild swan, which was shot at Webb's Pond by Hamlin Kingman of Waltham, Monday. It is a young bird, pure white, except for its black feet and bill and grayish shade on head and neck. . . ." As the writer had occasion to be in Ellsworth immediately afterward he visited the taxidermist shop of Mr. Brann but found the proprietor was out. The bird could be seen through the store window but was too far away to permit of its specific identification. On other occasions when in Ellsworth I was likewise unable to see the bird at closer quarters. Recently I asked Miss Cordelia J. Stanwood of Ellsworth if she would not get careful measurements and a description of the bird for me, knowing she was a careful observer and bird student. She very kindly obtained and sent me the following description: "Bill and feet of specimen black; a yellow spot before the eye or on the lores; distance from nostril to the eye much greater than distance from nostril to tip of bill; head somewhat tinged with warm gray or pearl gray; the rest of the bird white. The specimen is in pretty good condition aside from dirt." In connection with Miss Stanwood's description and my own distant view of the bird I have no hesitation in pronouncing it a Whistling Swan, a bird new to Maine. The only other identified species of swan known from Maine is the Whooping Swan, being the specimen formerly in the collection of Clarence H. Clark of Lubec, and now, I have been told, in the Bowdoin College collection.— ORA WILLIS KNIGHT, *Bangor, Me.*

The Wood Ibis (*Mycteria americana*) in the Mountains of North Carolina.

— I saw and examined a mounted specimen of this species which was killed on the Catawba River near Morganton, Burke County, North Carolina, a few years ago. The bird was on exhibition in Leslie's drug store and the proprietor assured me that many others were seen but not secured. As far as my information extends this species has never been reported further westward than Raleigh. (See Brimley, *Auk*, X, 1893, 243.)— ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

An Egret in Rhode Island.— Messrs. Angell & Cash of Providence, R. I., permit me to record the capture of an immature male Egret (*Herodias egretta*) at Point Judith, August 2, 1909. The bird was brought to them to be mounted.— REGINALD HEBER HOWE, *Concord, Mass.*

Capture of the Northern Phalarope near Springfield, Mass.— A Northern Phalarope (*Lobipes lobatus*) was captured on the Connecticut River near Springfield, Mass., on September 23, 1909.— ROBERT O. MORRIS, *Springfield, Mass.*

A Recent Record for the Eskimo Curlew.— On November 22, while at the University of Maine, I noticed among the accessions to the Museum a very fine specimen of the Eskimo Curlew which had been recently mounted. This bird is a male and was taken at Hog Island, Hancock County, Maine, on September 2, 1909, by Mr. Cyrus S. Winch, the taxidermist for the University. This is the first record of the species along the Maine coast for several years. Mr. Winch also had a Hudsonian Curlew taken at the same locality by a fisherman a day or so before he arrived there.— ORA WILLIS KNIGHT, *Bangor, Me.*

Pinnated Grouse in Southern Ontario.— On November 25, 1909, I had the pleasure of looking through the collection of Mr. Alex. Gow, Windsor, Ont., and was much pleased to find in it a recent Canadian specimen of the Pinnated Grouse. The bird was a female in fine condition, taken in Sandwich, West Township, eight miles south of Windsor, on the Detroit River, April 29, 1897. It seems altogether probable that this will be the last specimen ever taken in southern Ontario; though, of course, it will probably occur in the northwestern part of the Province.

Mr. Gow tells me, that he had two others, which had been taken near Chatham, forty miles east of Windsor, about 1882 or 1883, but these have not been kept.

The country around Chatham, and from there to Windsor, has much ground suited to the needs of this bird and there can be little doubt that it was once common through most of this territory, although the district ten miles north of Chatham is the only spot from which records have been preserved.— W. E. SAUNDERS, *London, Ont.*

Golden Eagle taken in West Florida.— An adult female Golden Eagle (*Aquila chrysaetos*) was taken near DeFuniak Springs, Florida, on November 1, 1909. This is the third individual of this species taken in this vicinity during the past two years, all three specimens having been examined and identified by the writer. The first was taken on January 17, 1908, and the second on January 31, 1908.— G. CLYDE FISHER, *DeFuniak Springs, Florida*.

The Osprey a Breeder on the Catawba River, near Morganton, North Carolina.— Among the most noteworthy birds that were mounted and on exhibition in Leslie's drug store at Morganton, was a specimen of the Osprey (*Pandion haliaetus carolinensis*). It was mounted with a Yellow-billed Cuckoo (*Coccyzus americanus*) in its talons! I was informed that the Osprey breeds regularly on the Catawba River, although I did not see any birds.

In his paper, 'An Ornithological Reconnaissance in Western North Carolina,' Mr. Brewster does not mention the Osprey. The country in the near vicinage of Morganton must be considered the westernmost breeding range for the species in the State.— ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

A New Name for *Psephotus multicolor*.— *Psittacus multicolor* (Temminck MS. 1819) "Brown" *vide* Kuhl, *Conspectus Psittacorum*, p. 55, No. 88 (1820); also Temminck, *Trans. Linn. Soc. London*, vol. 1, XIII, part 1, p. 119 (1821) (= *Psephotus multicolor auctorum*) is unfortunately preoccupied by *Psittacus multicolor* Gmelin, *Syst. Nat.*, I, p. 328 (1788), applied to the Blue-bellied Lorikeet. The species commonly known as *Psephotus multicolor* may be called ***Psephotus varius***.— AUSTIN H. CLARK, *1726 Eighteenth St., Washington, D. C.*

Fork-tailed Flycatcher in Maine.— In late December, 1908, a correspondent wrote to me giving the description of a "peculiar bird" she had seen in the flesh while in the possession of an Indian guide and "taxidermist," and asking what it could possibly be. Her description made it absolutely certain that the bird must belong to the genus *Muscivora*, but which species was a matter requiring more data. After nearly a year's waiting I have at last had the specimen sent to me for identification and it is before me as this is written. It is a typical specimen of *M. tyrannus*, agreeing in measurements with those given by Ridgway for the female of the species. Though originally in good plumage it has been mounted by "main strength and foot power" and would require careful remounting to make it presentable.

The bird was shot near the mill of Mr. S. M. Holway in the town of

¹ Auk, III, 1886, 103.

Marion, Washington County, Maine, December 1, 1908, by Mr. G. H. Graham, and is now owned by Mr. Holway who has kindly submitted it to me for positive identification.

It is rather interesting to note in this connection that many birds of the southern regions have been taken from time to time in or near this section of Washington County. The late George A. Boardman personally secured several rarities in this general region, and subsequently others have taken equally unexpected species. The statements of taxidermists are naturally open to suspicion where pecuniary matters are concerned, so it is always desirable to have confirmatory evidence where obtainable. The evidence in the present case seems entirely satisfactory.—ORA WILLIS KNIGHT, *Bangor, Me.*

The Bobolink at Philadelphia, Pa., and Vicinity in Summer and Autumn.

—The Bobolink is a common transient in the vicinity of Philadelphia, and is enumerated as such in Stone's 'Birds of Eastern Pennsylvania and New Jersey' (page 31) among the birds found within ten miles of this city, but it appears that it has been observed here during the summer months by different observers since the publication of his book in 1894 on enough occasions to warrant a suspicion that it is perhaps a rare breeder. I have myself seen it here in summer on three different occasions, but under conditions that left room for doubt as to whether they were breeding.

At Bridesburg, Philadelphia, a locality along the Delaware River, five miles north of the city, on June 5, 1902, I observed a female and two males, and on June 1, 1906, a male; on June 8, 1907, Mr. Ernest A. Butler and I saw an abnormally colored male at Tinicum, Delaware County, Pa., a locality also along the Delaware River, and about six miles south of Philadelphia. Both of these localities are low, swampy meadow and marsh lands, and are localities which it is doubtful the Bobolink would select as breeding grounds.

The behavior of the birds did not appear to me to be that of nesting birds. They all acted like late migrants, and the Tinicum bird evidently was one, as the spring of 1907 was very backward and kept some transients lingering here until June. The two males of the three birds observed on June 5, 1902, I know for a certainty were killed by illegal gunners who roam these meadows throughout the year, but what became of the female was not ascertained, but it never was afterward seen. The male seen June 1, 1906, was also probably a late migrant as it was never again seen, or perhaps it, too, was killed by some "man with a gun."

None of these birds were wounded individuals left behind in the migration, as was determined by chasing and making them perform long flights. The abnormal bird was chased by a gunner and unlike the other males it was not heard to sing.

On page 105 of his excellent book, Stone says: "The Bobolink is a regular breeder in the northern parts of Pennsylvania and New Jersey,

but it is of irregular distribution." This is a proven fact and as a consequence the Bobolink, or Reedbird as it is called here in fall, is one of the first transients to arrive in late summer or fall from its breeding grounds. The following dates constitute my records of its arrival on the Delaware River marshes in the vicinity of Philadelphia, where it is then an exceedingly abundant bird:—

1897, August 16 — one.	1904, August 13 — several.
1898, July 18 — several.	1905, August 4 — one.
1899, August 14 — many.	1906, July 24 — several.
1900, August 6 — many.	1907, July 28 — one.
1901, August 28 — several.	1908, August 3 — one.
1902, July 21 — seven.	1909, August 5 — one.
1903, August 10 — one.	

The remarks following the dates refer to the number of individuals seen, and it will be noted that the earlier birds generally arrive singly or in small numbers — the bulk never put in an appearance until well along in August.

The table shows several unusually early records of arrivals, and these contrast strongly with the August 25 record of arrivals given in Stone's book (page 105). Warren also gives this time as the date of their appearance, for he says in his 'Birds of Pennsylvania,' 2d revised edition, page 207: "After the breeding season the Reedbird (both sexes), about the middle of August, again makes their appearance in our meadows and grain fields at this time..." My experience is that they arrive first on the wild rice (called reed here, hence the name Reedbird) marshes and my records bear me out, as it is in them I have always seen my first fall arrivals.

So far as I have been able to decide, the first birds to put in an appearance are always the adults, and they come in all kinds of moulting plumages, adult males not uncommonly being seen, and albinos are by no means rare. One of the latter, taken on the Delaware River marshes above Philadelphia, is mounted and in the possession of a local taxidermist. It is a fine bird, of a light straw or pale canary yellow all over, the edgings of the wing and tail feathers white, the feet and bill flesh-colored; the eyes were of the normal color.

On the Delaware River marshes the Reedbird or "Reedie," as it is more familiarly called, is a common game bird, and may be killed from September 1 to January in Pennsylvania and New Jersey, and they are annually killed (literally slaughtered) in immense numbers and sold in city markets. They bring from 75 cents to \$2.00 per dozen, prices varying according to supply, demand, and quality and condition of the birds. The unscrupulous dealer often imposes upon the ignorant buyer and sells him English Sparrows for Reedbirds, and when plucked these birds resemble the succulent Reedbirds in appearance but not in taste when cooked. In this condition they are often bought by game dealers and, as I have said, sold by

them as Reedbirds. Red-winged Blackbirds, plucked, are also palmed off to the ignorant as Reedbirds.

By October 1 the dead marshes are almost forsaken by the Reedbirds; my latest records of their occurrence are October 7, 1907, and October 14, 1908, when I saw several on both occasions at Bridesburg, but I have the assurance of reliable gunners that they have taken them as late as October 25, and wounded individuals have been killed as late as November. Whether the adult or young birds are the last to depart I cannot state from experience.—RICHARD F. MILLER, *Harrogate, Philadelphia, Pa.*

Regular Summer Crossbills at Ithaca, N. Y.—These erratic nomads have so long enjoyed a reputation for irregularity in their movements, both winter and summer, that the regularity of their appearance at Ithaca, especially during the past four years, seems worthy of note. In fact they have come to be predicted as accurately as many of our spring migrants.

In all we have about 40 records for the species. Of these, none have been made during the fall migration, but six during the winter, five during the spring, from the middle of March to the first of May, and thirty during the month of June.

A more detailed study of our data will better reveal the regularity of their appearance. The first record was made June 16, 1889, by Mr. L. A. Fuertes who with us in recent years has noticed the regularity of their occurrence. In 1900 and 1904 records were also made in June. In 1906 a flock of 10 were seen on the Cornell Campus from June 21 to 24. In 1907 they were first seen on May 28 when twelve were recorded, and they continued common until June 24. In 1908 they were daily noted from June 10 to 17. In 1909 a flock of fifteen appeared June 6 and the species remained until June 14. Thus, for four successive years they have returned in approximately the same season of the year and the appearance is apparently regular.—ALBERT H. WRIGHT, ARTHUR A. ALLEN, *Ithaca, N. Y.*

Breeding of the White-throated Sparrow in Yates County, N. Y.—Owing to the fact that the White-throated Sparrow (*Zonotrichia albicollis*) has never been reported as breeding in western New York, it gives me pleasure to record the nesting of this species in the famous bird haunt, Potter Swamp, in the northern portion of Yates County.

On the evening of May 31, 1909, as I was leaving the edge of this swampy forest I was surprised to hear the sweet clear whistle of a White-throated Sparrow coming from a two-acre clearing at the edge of the woods. Again on June 6, while photographing a nest of the Cerulean Warbler "in situ" near this clearing I heard the White-throat again, and as the bird sang so constantly and remained in a restricted area I felt convinced that it was singing to its mate on the nest. Therefore upon descending from the Cerulean's nest I began a search for the nest that was only successful after over

two hours' hunt among the tangle of weeds, ferns, bushes and swamp grass. The female was flushed directly from the nest at my feet, thus proving her to be a very close sitter. The nest contained four fresh eggs and was hidden on top of a grassy hummock at the base of a bunch of weeds surrounded by ferns and small bushes. Several photographs of the nest and eggs were taken.

The nearest record that I have been able to find was of a pair found breeding in Oneida County, near the village of Holland Patent, on June 16, 1886.

Of other species nesting in the near vicinity were Golden-winged Warbler, Canadian Warbler, Mourning Warbler, Water-thrush, Winter Wren, Yellow-bellied Sapsucker, Red-bellied Woodpecker, Wood Duck, and Brown Creeper.—CLARENCE F. STONE, *Branchport, N. Y.*

The Grasshopper Sparrow in Ontario.—In 'The Auk' for October, C. W. Eifrig, reports the occurrence of this bird in Ottawa, stating that this extends the bird's range by a long distance. This is, however, not the first time that the bird has been taken there. In the 'Ottawa Naturalist' for 1898, page 87, under the heading of 'Bird Notes' by W. T. Macoun, is the following: "Grasshopper Sparrow, one seen beyond Hull, on the 24th of June, doubtless breeding. Seen in rear of Experimental Farm on 26th and 27th, and one shot on the 28th." This is another addition to Ottawa's bird list.

My impression is, that this bird has not been observed near Ottawa in the intervening period, but evidently there were several of them around in that year. But it will also be observed, that as Hull is in Quebec, the bird was added that year to the Quebec list as well.—W. E. SAUNDERS, *London, Ont.*

The Cerulean Warbler (*Dendroica cerulea*) Breeding in Burke County, North Carolina.—On April 17, 1909, I heard what I then supposed to be the song of the Parula Warbler (*Compsothlypis americana*). The song, while almost identical with the song of that diminutive species, was not the song that I am accustomed to hear every spring on the coast of South Carolina. As the birds did not increase during the months of April and May and as there was scarcely any *Usnea* "moss" in which to build their nests, I concluded to make the identification positive, at close range, not wishing to shoot one. The few birds kept almost constantly in the topmost branches of sycamores, poplars, birches and deciduous oaks. On May 28, while *en route* to the locality, near Morganton, it suddenly occurred to me that the songs I had been hearing for over a month were produced by the Cerulean Warbler, as I had just remembered Mr. Brewster's description of the song of this species in his 'Birds of Ritchie County, West Virginia' (Ann. Lyc. Nat. Hist. N. Y., XI, 1875, 134). The morning on which the birds were positively identified I was accompanied by a friend, who is much interested in ornithology, and as we entered

the primeval forest the song of a male was heard at its regular singing station. Good luck favored us almost at once for the bird came down from the poplars to within fifteen, or at most twenty, feet of us where identification was easy and positive. At that time the song was on the wane and the young were evidently able to fly. As far as I was able to determine, there were but three or four pairs breeding in an area of a hundred acres, about three miles from Morganton.

Mr. Leverett M. Loomis, in his notes on this species as observed by him at Chester, South Carolina (Auk, VIII, 1891, p. 170), says: "Its appearance so soon in August leads to the inference that it breeds near at hand in the mountains." Mr. Loomis's surmise has at length been fulfilled. In the South Atlantic States this species has not been discovered breeding south of the mountains in Virginia. Among the most noteworthy birds that I found breeding near Morganton are the following: Orchard Oriole (*Icterus spurius*), very rare; Blue Grosbeak (*Guiraca carulea*), Scarlet Tanager (*Piranga erythromelas*), Summer Tanager (*P. rubra*), Cedar Wax-wing (*Bombycilla cedrorum*), Migrant Shrike (*Lanius ludovicianus migrans*), very rare; Mountain Solitary Vireo (*Lanivireo solitarius alticola*), Sycamore Warbler? (*Dendroica dominica albilora*), Louisiana Water-Thrush (*Seiurus motacilla*), American Redstart (*Setophaga ruticilla*), Bewick's Wren (*Thryomanes bewicki*), a common breeder. The Cape May Warbler (*Dendroica tigrina*) was found migrating in large numbers in late April (April 22) and up to the middle of May.

The Raven (*Corvus corax principalis*) breeds on Grandfather Mountain, and I saw a Golden Eagle (*Aquila chrysaetos*) on August 17 while it was flying over the town of Lenoir. On August 18, while at Lenoir I observed a brood of Sycamore? Warblers being fed by their parents.—ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

The Orange-crowned Warbler in New Jersey Again.—There seem to be only four dated records of the occurrence of *Vermivora celata* in New Jersey. These birds were secured in different parts of the State, the last being collected by P. Laurent at Anglesea, October 6, 1889. As being the first recorded capture in twenty years, it seems worth while to mention one which I shot at Haddonfield, February 25, 1909. The bird was feeding in a large pine tree opposite my study window. At first, supposing it to be a kinglet, I gave it little attention. For fully a quarter of an hour it stayed in the pine, flitting from limb to limb with the nervous, restless manner of the Redstart. This at last aroused me to surmise that the bird must be a warbler, though present at an unseasonable time of year. The shot, which secured the bird, destroyed its sexual organs. However, Mr. Witmer Stone was inclined to identify it as a female on account of the small size of the orange crown-patch.¹—ROBERT THOMAS MOORE, *Haddonfield, N. J.*

¹ For previous records in New Jersey see 'The Birds of New Jersey' by Witmer Stone, p. 271, in Report of the New Jersey State Museum for 1908.

Warbling Song of the Hudsonian Chickadee.— In 'Birds of Labrador,' by Dr. Charles W. Townsend and Mr. Glover M. Allen, published in the 'Proceedings' of the Boston Society of Natural History in 1907, the authors discuss at length the subject of the song of the Hudsonian Chickadee (*Penthestes hudsonicus*), which seems to have escaped the attention of observers till Rev. Horace W. Wright heard it at Ipswich, Mass., Nov. 12, 1904, and mentioned it in 'The Auk,' Vol. XXII, 1905, p. 87. For the convenience of readers who may not have the original paper at hand it may be well to recapitulate the other records there brought together. The same or a similar warbling song was heard by Mr. Wright at Belmont, Mass., Nov. 25, 1904; by Dr. Townsend at four different places on Cape Breton Island in August, 1905 (Auk, Vol. XXIII, 1906, p. 178); by C. H. Clark at Lubec, Me., Feb. 11, 1906 (Journal Maine Orn. Soc., Vol. VIII, 1906, p. 27); by Dana W. Sweet on Mt. Abraham, near Phillips, Me., June 22, 1906 (Journal Maine Orn. Soc., Vol. VIII, 1906, p. 83); by Mr. Sweet, Jan. 19, 1905 (letter to Dr. Townsend); and by Dr. Townsend and Mr. G. M. Allen at Bay of Islands, Newfoundland, July 6, 1906. To this list I can now add one more observation. Near the top of Mt. Moosilauke, N. H., Sept. 29, 1909, I heard a short strain of bird-song which I at once suspected to be the Hudsonian Chickadee's warble. I soon saw the author and found that my suspicions were correct. I observed it for some time at close range and heard it sing again and again. The song was a short one but took two or more forms, one of which I set down at the time as bearing some slight resemblance to the syllables *wissipawiddlee*, though this rendering conveys no clear impression of its warbling quality. The final syllable was sometimes trilled and sometimes pure. It seemed to me that the song corresponded exactly to the *phabe* song of the Black-capped Chickadee (*P. atricapillus*), but it was also strangely suggestive of the song of Bicknell's Thrush!— of the qualities of that thrush's song that are peculiarly its own (or shared by the typical subspecies *Hylocichla alicia*), not those which are common to the genus and which we are accustomed to speak of as "thrushlike." The suggestion of the common Chickadee's song was in the bare outline of it, while it was the elaboration and the tone that suggested *H. a. bicknelli*. The correspondence of

the two Chickadee songs might be expressed thus: $\left\{ \begin{array}{ll} \textit{wissipa-} & \textit{widdlee} \\ \textit{phæ-} & \textit{bee} \end{array} \right\}.$

It seemed to me as if *P. hudsonicus*, starting with a simple song like that of its relative, had evolved the other after listening to and imitating the thrushes with which it shared its breeding-grounds, or perhaps that the identical environment had operated to produce the same peculiar quality in the songs of two widely different species of birds.

One of the most remarkable things about this song of the Hudsonian Chickadee is its rarity. Mr. William Brewster's testimony on this point is interesting. In 'Birds of the Cambridge Region,' 1906, p. 379, he says, referring to the reports of Mr. Wright and Mr. Clark cited above: "I have

never heard anything of the kind from the Hudsonian Chickadee, although I am reasonably familiar with that species, having had abundant opportunities for studying its notes and habits in the forests of northern New England, where I have met with it on many different occasions and during every month of the year except April." My own experience, though not nearly so extensive, is yet corroborative as far as it goes, for I have seen the bird frequently in the month of June on its breeding-grounds in New Hampshire, Vermont, and Nova Scotia, but had never heard anything like a song from it before the occasion now recorded.—FRANCIS H. ALLEN, *West Roxbury, Mass.*

Finding of Three Rare Nests in New Jersey.—The Pine Warbler (*Dendroica vigorsii*) is described as a common summer resident in the pine barrens of New Jersey, but no nest had been recorded until 1908. On May 13 of that year I was fortunate enough to discover a nest in the process of building near Tuckahoe, N. J. It contained four eggs on May 22 and was then secured for my collection.

It seems strange that a bird, which is so abundant in the pine barrens, which has been noted in the summer repeatedly by ornithologists, and whose nest has been diligently searched for in this section by well-known collectors, should not before this have suffered the discovery of its home. Some light is thrown on the problem by the difficulty I experienced in locating this one, even after I was positive of the tree which contained it. In the first place, the nest was placed at the top of a tall pine tree; second, when seen from below it precisely resembled a large pine cone; third, the birds were unusually quiet in the vicinity of the home, standing for five minutes at a time like statues, and very cautious not to betray the nest.¹ Since the discovery I have learned that Mr. H. H. Hann found two nests of this bird at Chatsworth in 1904, but did not record them.

On May 22, 1908, near Tuckahoe, N. J., I found a nest of *Anas rubripes tristis* containing nine eggs. On May 26 the eggs had increased to twelve, which were then surrounded and separated from each other by tufts of down. The nest itself was perfectly concealed among high grasses at the foot of a maple tree, one of the few deciduous trees in the vicinity.²

The locality chosen by the duck is as wild and secluded a one as can be found on the Jersey coast. It is a pine point which juts out from the mainland into the meadows. Behind it is a barrier of almost impassable swamp, five miles long and two miles wide. Before it are miles of meadows stretching clear to the horizon, where only a line of blue betrays the coast islands. To reach the point requires persistent toiling through masses of briars and constant wading through water, which often rises above the knees. It is to such seclusion that the few members of this species which still nest in the State are compelled to resort. What a marked contrast this is to the

¹ For detailed account see 'Cassinia,' 1908, p. 32.

² For detailed account see 'Cassinia,' 1908, p. 37.

condition, reported by Mr. W. E. D. Scott from one of the coast islands in 1877. He states that the Black Ducks were "Common [in summer], breeding in numbers about the small salt-water ponds on the beach."¹

Although this bird is still occasionally reported as breeding along the coast, the present find seems to be the only record of the discovery of a nest with eggs since the seventies. It is therefore welcome evidence that this fine bird will reside with us, if it is thoroughly protected during the early spring.

The Marsh Hawk (*Circus hudsonius*), though nesting regularly in the northern half of the State, is a rare breeder in the southern half. Apparently the last published record of the finding of a nest in southern New Jersey is to be found in the 'Bulletin' of the Nuttall Ornithological Club, 1879, p. 224, where Mr. W. E. D. Scott states, he took a nest with young and eggs at Long Beach, June 28, 1877. Another set of eggs seems to have been secured at the same place June 25, 1886.² On May 13, 1908, I discovered a nest containing five eggs on the edge of the Great Egg Harbor Meadows. It is perhaps interesting to note that it was found within sixty feet of the Black Duck's nest, above mentioned, though discovered nine days previously.³—ROBERT THOMAS MOORE, *Haddonfield, N. J.*

Concerning Three alleged "Erroneous Georgia Records."—Pressure of other matters has caused me to overlook until now Mr. Wayne's article in 'The Auk' for April, 1908, disputing the correctness of the citation on p. 208, Part II, 'Birds of North and Middle America,' of a breeding record for *Molothrus ater* in Georgia, offering as proof that "during the month of May, 1901," he "failed to detect the Cowbird" in Wayne, McIntosh, and Glynn counties, Georgia. Bendire, however, states positively (*Life Hist. N. Am. Birds*, 1895, p. 435) that, to his knowledge, the species *does* breed in Wayne and McIntosh counties, Georgia; consequently there are reasons for suspecting that Mr. Wayne's failure to find the species while making observations there (for part of a single month in each county) hardly proves Major Bendire to have been mistaken.

As to the breeding of the Bank Swallow and Short-billed Marsh Wren on St. Simon's Island, which Mr. Wayne rather positively discredits, it is only necessary to say that Mr. Bailey's records (*Bull. Nutt. Orn. Club*, VIII, 1883, pp. 38, 39), cited by me, are based on eggs actually collected there and positively identified (both by Mr. Bailey and myself), and that therefore my citation of an alleged "unquestionably erroneous record" was in reality not "due to an oversight." It is of course quite possible that none of the species mentioned now breed in Georgia; but even were this established as a fact it would by no means prove that they did not nest there between 1853 and 1865.—ROBERT RIDGWAY, *Washington, D. C.*

¹ *Bull. Nutt. Orn. Club*, 1879, p. 226.

² *Birds of New Jersey*, by Witmer Stone, in Report of New Jersey State Museum for 1908, p. 161.

³ For detailed account see 'Cassinia,' 1908, p. 35.

Purple Gallinule, Sabine's Gull, and other Rare Birds in Quebec. — About the middle of September last a young Purple Gallinule was shot on the beach of the St. Lawrence River about two miles from the city of Quebec, and towards the first of October an adult Sabine's Gull, in its fall plumage, was also shot in the same place, by another sportsman. This bird and the preceding one, which are in my possession, are the first records of their presence in the Province of Quebec.

In September last, a Meadowlark was captured in a field near a forest at Lorette, about six miles from Quebec. This is the second occurrence of this bird here.

Mr. J. Beetz, of Piastre Bay, Pointe aux Esquimaux, on the North Shore of the St. Lawrence, has recently sent me one adult specimen of the Mourning Dove shot by him the 23d of October last. We have had until now only five records of its presence in the Province; two near the city of Quebec, and three were recorded some years ago at Godbout, by Mr. N. Comeau, but none so far in the North.

Mr. Beetz has also sent me one Ruby-throated Hummingbird captured the 25th of September.— C. E. DIONNE, *Quebec, Canada*.

Colorado Notes.— *Geococcyx californianus*. ROAD-RUNNER.— On December 13, 1902, a boy living in University Park came into the shop of Mr. Hugo Todenwarth, then a Denver taxidermist, with a live Road-runner, which he said he had captured in their woodshed on the preceding day. University Park lies at the outskirts of Denver and adjacent to it are wide stretches of virgin prairie land. It seems probable that this bird had left the open country on this winter's day to seek shelter among the abodes of man.

***Calamospiza melanocorys*.** LARK BUNTING.— On December 25, 1901, I shot a male Lark Bunting on Clear Creek, near Denver. On skinning the bird I tried without success to find some wound on account of which it had been detained with us until Christmas-day. It should have gone south with its companions not later than the last of September or the first of October.— A. H. FELGER, *Denver, Colorado*.

Birds of Central Alberta.— In 'The Auk' for October, 1909, appeared a list of the birds of this district by Sidney S. Stansell, and almost at the same time, an abbreviated list was published by him in the 'Ottawa Naturalist.' The two lists do not agree with each other, nor do they harmonize with our knowledge of the birds of the region described. May I then be permitted to point out a few of the discrepancies and suggest corrections on other points.

Whooping Crane. Stated to be "a very common migrant." This may have been intended to read Sand Hill Crane, as the Whooping Crane is now believed to be excessively rare. Preble in his Athabasca-McKenzie Report, states that this bird "has now become almost extinct in the north."

White-winged Crossbill. "Very rare, seen but once." The list in the 'Naturalist,' states that this is a common breeder, which may readily be true in some seasons.

Evening Grosbeak. "Quite rare." In the other list this bird is stated to be a quite common breeder, which is doubtless incorrect.

Nelson's Sparrow. "Fairly common"; the list in the 'Naturalist' states that this bird was seen once. It is likely to be moderately common in favorable localities.

Lincoln's Sparrow is not reported in either list and has possibly been confused with some other bird, as it is rather common through the country to the south of the district in question, in the parts that I have visited. Preble states that it is the common Song Sparrow of the region referred to. It is therefore quite probable that, in the territory under review, Lincoln's Sparrow is a moderately common bird.

Philadelphia Vireo. "Very common." In the 'Naturalist' this bird is referred to as "very rare," which is much more likely to be correct than the other statement.

Myrtle Warbler. Common in migration, but not found breeding. In the 'Naturalist' this bird is given as a common breeder, which it probably is, in the spruce districts.

Magnolia Warbler. Given as "very common" but not found by him nesting. "Common migrant." Given in 'Naturalist' as a common breeder. This bird will probably be found as a breeder in selected localities.

Brewer's Blackbird. "Somewhat more numerous" than the Rusty Blackbird. Stated in the Naturalist to be rare, but the report in 'The Auk' is doubtless correct.

Chipping Sparrow. "Quite common." The report in the 'Naturalist' gives this bird as "very rare," and my experiences in the vicinity would lead me to give credence to the latter report much more readily than to the former.

Black-poll Warbler. "Very rare." Stated in the 'Naturalist' to be a common breeder. The truth probably lies between these two statements.

There are a number of other less important references that are probably not strictly correct, but the most conspicuous ones are those mentioned above. Doubtless many of these would have been avoided if Mr. Stansell had considered the proof of his article after it had been set up.—W. E. SAUNDERS, *London, Ont.*

Two Additions to the Avifauna of South Carolina.—On October 26, 1897, I shot a young male *Zonotrichia leucophrys* near Mount Pleasant. The bird was in a corn field, perched upon a stalk, and I was attracted to it by its peculiar call-note. This is the first specimen I have ever seen or taken during twenty-seven years of active field work.

Although this species has been recorded by Audubon (Birds of America, Vol. III, p. 158), who says: "In the winter of 1833, I procured at Charles-

ton in South Carolina, one in its brown livery," there are good reasons for believing that Audubon was in error and mistook the young of the White-throated Sparrow (*Zonotrichia albicollis*) for the young of the White-crowned.

Dr. Coues also records (Proc. Bost. Soc. Nat. Hist., XII, 1868, p. 115) the White-crowned Sparrow for South Carolina, the observations being made at Columbia. As this list contains many errors, he also undoubtedly confused this bird with the White-throated Sparrow, as Mr. Leverett M. Loomis never met with *Z. leucophrys* at Chester during fourteen years of careful research. As Dr. Coues spent but two years at Columbia, the reason why so many errors appear in his 'Synopsis of the Birds of South Carolina' is obvious.

The Cliff Swallow (*Petrochelidon lunifrons*) has thus far remained unrecorded for South Carolina. On April 28, 1898, I shot two specimens, and on May 8 of the same year I secured two additional examples, all of them being taken near Mount Pleasant. On August 30, 1904, I observed another specimen, but did not obtain it. These swallows were in company with the Barn Swallow (*Hirundo erythrogaster*) and were readily identified by their rufous upper tail-coverts. This is the first record of capture for the State; although its probable occurrence was first mentioned by Dr. Coues in his 'Synopsis of the Birds of South Carolina' (Proc. Bost. Soc. Nat. Hist., XII, 1868, p. 111). Dr. Coues says: "I do not know of the occurrence of *H[irundo] lunifrons*, but there is reason to believe that it may pass through during its migrations."—ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

Recent Albinos from Illinois and Michigan.—An adult male Fox Sparrow (*Passerella iliaca*), with decidedly albinistic plumage, was taken by me at Hubbard Woods, Ill., on April 7, 1909. The general appearance of the bird in the field was splotched white and brown, but on closer inspection it could be seen that the whole crown was white, the back and wings being rather mixed in color. The bird was not, then, bilaterally albino. On the whole, the white and brown were in about the same proportion. The whole throat and breast were white; eyes and feet natural color.

An adult female Red-winged Blackbird (*Agelaius phæniceus*) showing albinistic tendencies in the first three or four primaries of the left wing, I collected at Long Lake, seven miles southwest of Traverse City, Michigan, on July 23, 1909. This bird was singled out of a flock as peculiar in appearance and secured with some trouble.

These two specimens were mounted by myself and presented to the Chicago Academy of Sciences in September of the same year, as an addition to the collection of albino birds in that institution. At that time no other mounted specimens of albinos of these species were on display in that collection.

I might add that on June 29, 1909, on the waters of Long Lake mentioned above, I succeeded in securing after half a day's pursuit a juvenile Loon (*Gavia imber*). This bird weighed three and one-half pounds and measured twenty-one inches in length. I judged the specimen to be about one-third grown, since an old one weighs from eight to ten or eleven pounds on the average. A common perch six inches long was taken from the throat.

On July 1, a boy who had been sailing on the lake came upon another young loon and secured it with his hands. It weighed one quarter of a pound and was about seven inches in length. I judged this one to have been hatched not over two days. The odd thing about these two captures is that the growth of the birds was so far advanced in one and so little in the other.

I mounted both of these specimens and they are now in my private collection. On July 4 I went out on the lake again and came upon another very young loon, which I let go, in company with the two adults.—McCORMICK JEWETT, *New Haven, Conn.*

Destruction of Young Water Birds by a Storm.—On August 28, and for some days following that date, a severe storm swept the Pacific coast of Washington. At that time of the year the nestlings on the bird islands were just about ready to fly. Some had already gone to the water, and those that were still on the rocks were blown into the pounding surf by the raging wind. When the storm abated the coast was strewn with dead birds. In walking a quarter of a mile I picked up 58 dead birds and half that number of crippled and half drowned ones. The Gulls suffered least for they had taken to the water some weeks before and were able to reach places of safety. Many Cormorants perished, nearly all of the Puffins, and all the California Murres. A half a hundred thousand birds must have perished.—ALBERT B. REAGAN, *Supervising Warden of the Olympic Bird Reserves.*

The Tagging of Nesting Birds.—The plan introduced by Dr. Leon J. Cole of New Haven, Conn., for the marking of birds, both old and young, should prove in time of much value by its help in solving some of the problems connected with their migratory movements, and for that reason we may wish it a success.

My experience, however, in the tagging of young Martins, as I regret to say, has not proved altogether successful. For example, a brood tagged July 26 was found to have left the chamber safely, but not so the remaining members of another brood similarly marked two days later. On August 12 the remains of this bird were found just outside the chamber on the martin-house platform, some of the nesting material it seems having become attached to the aluminum band on the bird's right leg, holding it fast and thus causing it to perish after being abandoned to its fate by the

older birds. Unfortunately my attention had been drawn elsewhere soon after the marking, otherwise this tragedy might have been prevented.

But this incident serves to show that some caution will have to be exercised in the marking of the young; and, in the writer's opinion, it may be necessary for us to confine our work to the larger and more powerful birds.

For obvious reasons such birds as the Vireos, and particularly the Orioles and various members of the family Paridæ, should be stricken from the list; in fact, any of the birds where a similar mishap is likely to occur.

A tag might be devised, however, which would remedy all this and allow us to proceed with the original plan, but nothing thus far has presented itself to my mind. Others perhaps may have met with a similar experience.—BENJ. T. GAULT, *Glen Ellyn, Ill.*

Two additional Copper-Plates of the Folio Edition of Audubon's 'Birds of America.'—Since the publication of my paper on this subject (Auk, Vol. XXV, p. 401), I have received information of two others which have been preserved. This increases the list already recorded to thirty-nine. The plate (pl. cxii) representing the Downy Woodpecker, is in the possession of Miss Grace H. Dodge, New York. Mr. J. H. Sage has recently located the plate (cccxxxviii) of the Bimaculated Duck,¹ belonging to Mr. Cephas Brainerd of Haddam, Conn. Mr. Brainerd writes me that it was presented to him by the late William E. Dodge, New York. Calling at Mr. Dodge's office one day, he was shown a number of the plates which Mr. Dodge stated were all that remained of the Audubon 'coppers,' which had been ruined by neglect and exposure. Mr. Brainerd examined them and was satisfied that some might be put in good order, framed and preserved. The experiment was successful and this plate, as well as a number of others, were completely restored.—RUTHVEN DEANE, *Chicago, Ill.*

RECENT LITERATURE.

Sharpe's Hand-List of Birds.—The recent appearance of Volume V of Dr. Sharpe's 'Hand-List of the Genera and Species of Birds'² brings to a close a work which makes every systematic ornithologist a debtor to his great industry and indomitable perseverance.

¹ Named in the plate *Anas glocitans* but in the Orn. Biogr., *Anas Breweri*.

² A Hand-List of the Genera and Species of Birds. [Nomenclator Avium tum Fossilium tum Viventium.] By J. R. Bowdler Sharpe, LL. D., Assistant Keeper, Department of Zoology, British Museum. Volume V. London: Printed by order of the Trustees. Sold by Longmans & Co., 39 Paternoster Row, E. C.; B. Quaritch, 11 Grafton Street, New Bond Street, W.; Dulau & Co., 37 Soho Square, W.; and at the British Museum (Natural History), Cromwell Road, S. W. 1909. All rights reserved.—8vo, pp. xx+694.

The first volume of this great work appeared in 1899, the second in 1900, the third in 1901, and the fourth in 1903, there being an interval of ten years between the appearance of the first and last volumes. They have also steadily increased in size, the fifth being more than twice the size of the first, the five volumes totaling more than 1700 pages.

According to statistics given in the present volume "the total number of known species of birds is, . . . approximately," 18,939, arranged in 2810 genera, 174 families, and 35 orders. The Passeriformes alone comprise 48 families. Dr. Dubois's 'Synopsis Avium,' completed five years ago, contained 16,478 species and subspecies, 2252 genera, 145 families, and 23 orders. A thousand species, and probably 150 genera, have doubtless been added during the last four years, thus considerably lessening the apparent difference between the number of 'species' and genera recognized in the two works, with the number, five years ago, probably nearer the figures given by Dubois, in view of the fact that Sharpe's 'species' include hundreds of forms originally proposed as subspecies and later discarded, even by their authors, as well as by subsequent authorities who have had occasion to deal with them.

While Dr. Sharpe, in this work alone, not to mention his many volumes of the British Museum 'Catalogue of Birds,' and numberless other works and papers, has done an immense service to systematic ornithology, it is to be regretted that he has adhered so strictly to certain antiquated methods and ideas. "Consistency is [*not*] a jewel" when it stands in the way of progress. When the British Museum Catalogue of Birds was begun, thirty-five years ago (the first volume was published in 1874), it was quite the natural thing to begin zoölogical nomenclature with the twelfth edition of Linnæus's 'Systema Naturæ' (1766), although admitting genera of other authors of prior date (notably Brisson's), thus treating these authors better than Linnæus; but the 10th edition is now, and has been for many years, the starting point authorized by all modern codes of zoölogical nomenclature, and is generally accepted by all authors except the very few who find it difficult to abandon long-standing habits of thought and practice.¹ Equally difficult is the abandonment of the habit of giving preference to emended names, as is shown by the 'Hand-List,' although such practice is tabooed by modern codes and has been abandoned by most of the leading zoölogists of the present day.

Neither has the author of the 'Hand-List' been able to accept the modern notion of subspecies, he being apparently appalled by the occurrence now and then of a tautonymic trinomial. But he says: "That races or subspecies exist in nature, no one can deny, but, to my mind, a binomial title answers every purpose, and a system of nomenclature which calls

¹ In a footnote to page 386, apropos of the name "*Pyrranga rubra*" vs. *P. erythromelas*, Dr. Sharpe says: "In common with most British Naturalists, I do not recognize the names of the 10th edition [1758] of Linnæus's 'Systema,' and I follow Dr. Sclater in preserving the name *P. rubra* (Linn.) [1766] for the species." We fear the statement "most British Naturalists" is merely an unconscious reminiscence!

the Hawfinch, *Coccothraustes coccothraustes coccothraustes*, and the Common Swift, *Apus apus apus*, will not survive long, though it has to be admitted that, at the present time, the system is very popular, while my views are considered to be old-fashioned." Through his method of treating all named forms as 'species,' even when proposed by the original describer as only subspecies, it is impossible for anyone but an expert to know that a very large number of the binomials stand merely for races, with no indication whatever of their real relationships or relative importance; or that many already discarded forms are here given a new lease of life in the garb of full-fledged species. Thus to the novice or the amateur the 'Hand-List' is sadly misleading, and the expert, outside of the groups of which he has critical knowledge, is put to the trouble of looking up the real status of many alleged species in order to know their true status and affinities.

It is for these three reasons that the 'Hand-List' is out of touch with modern ornithology, and lacks a large part of the authoritativeness such a work should possess. Yet it is a convenience of immense value to have the described forms of birds catalogued in due form, with references to works wherein they are fully described, and where figures of them may be found in case such exist; and for this reason the 'Hand-List' will doubtless be adopted in most ornithological museums as a basis of arrangement, it serving so well as a directory for the location of material.

The system of classification followed is that proposed by the author in 1891, of which he said eight years later (in Vol. I of the 'Hand-List'): "I have seen no reason to modify the conclusions there recorded in any material degree." In the fifth volume, however, he says: "In any future edition of the 'Hand-List' I should divide the Class Aves into the two Sub-Classes *Palæognathæ* and *Neognathæ*, since I consider this arrangement, proposed by Mr. Pycraft, more natural than the old division into *Ratitæ* and *Carinatæ*." Beyond this, apparently, he considers his system still satisfactory.

In reviewing Dr. Sharpe's invaluable 'Hand-List' from what appears to be the generally approved modern viewpoint we are not disposed to belittle the magnitude and usefulness of this great work, for which ornithologists the world over cannot be too grateful.—J. A. A.

Stone's 'The Birds of New Jersey.'¹—In response to the wide popular interest in birds, and in promotion of this interest, manuals of birds have been issued by the authority or under the auspices of several State governments, or through individual effort, till at present a considerable number of excellent local handbooks of ornithology are available for those who desire to become acquainted with the birds of their immediate region. The latest of these to call for notice is Mr. Stone's 'The Birds of New Jersey,' recently

¹ The Birds of New Jersey. By Witmer Stone, Curator Academy of Natural Sciences of Philadelphia. Annual Report of the New Jersey State Museum for 1908 (1909), pp. 11-347, 409-419, pl. 1-84.

issued in the annual report of the New Jersey State Museum for 1908, of which it forms the chief part of a volume of nearly four hundred and fifty pages. These reports are distributed free to "all of the New Jersey public libraries, school libraries, colleges, museums, historical societies, the State officials and those interested in natural history," and thus become available to a large number of the citizens of the State. The report for 1907 contained a similar handbook of the mammals of New Jersey, prepared also by Mr. Stone, and the reptiles and fishes, and some other classes of New Jersey animals, have been treated by other competent authorities.

The introductory part of the work here under notice deals with the destruction and protection of birds, their distribution and migration in New Jersey, and includes also a key for the identification of the higher groups. The species are then treated in systematic sequence, under the names adopted for them in the forthcoming new edition of the A. O. U. Check-List, and the work concludes with a bibliography of New Jersey ornithology, a glossary of technical terms, and an index (pp. 409-419). There are also keys to the genera of Passerine birds, and keys to the species of all the larger families.

Concise descriptions are given of the species, including the plumage of both adults and young, and of the nest and eggs, all in small type, followed by a statement of the status of the species as a bird of New Jersey, with dates of migration, character of its haunts, more or less biographical detail, and reference to its economic relations, when required. In the case of rare birds, or species of accidental occurrence, the records are cited, with the authorities therefor given in footnotes. The work is thus thoroughly up to date and authoritative, as would be expected from its authorship. The introduction gives excellent advice in the matter of bird protection, to aspirants for ornithological knowledge, and especially to the ambitious young egg-collector. The 84 plates with which the work is illustrated are half-tones, in small part base on specimens in the New Jersey State Museum, but largely (about one-half) from Wilson, and others from Audubon and the leaflets of the National Association of Audubon Societies. About one hundred species are illustrated, and the figures given should greatly aid beginners in their bird studies. All in all the work¹ should prove of

¹ The number of species included as birds of New Jersey appears to be nowhere stated, the numeration being that of the A. O. U. Check-List, and is thus not consecutive.

In this connection a few words may be added on the desirability of numbering the species in faunal lists. To most persons the number of species given in a list is a fact of some interest, and one a careful reviewer or bibliographer feels called upon to state as an indication of its scope and interest. If the species are numbered in sequence this item of information is available at a glance; if they are not they must be counted, which, in the case of a long list, is a burdensome task.

It also happens, as in the present case, that the species of a list or a faunal handbook are numbered, but only with the numbers of the A. O. U. Check-List, which, being non-consecutive, seem to have no practical utility; in other cases consecutive numbers are given in addition to the Check-List numbers, and are a source of convenience and information to many of the users of such lists or works.

great usefulness to those who desire an acquaintance with the bird life of New Jersey.—J. A. A.

G. M. Allen's List of the Birds of New England.¹—Volume VII of the 'Occasional Papers' of the Boston Society of Natural History, entitled 'Fauna of New England,' will contain a Catalogue of the animals of New England, of which the present part is devoted to a 'List of the Aves.' These lists, it is stated, are considered by the Committee having the matter in charge to be "a necessary preliminary to a series of comprehensive, illustrated monographs, the publication of which it is hoped the Society will at some later time take upon itself." The preliminary lists are to include: "(1) the accepted name (scientific and vernacular); (2) reference to the original description, with record of locality; (3) reference to an authentic description and illustration; (4) habitat and occurrence."

The present list of birds is constructed on these lines, the references being restricted to the place of original description and to some later work in which, respectively, the species and its eggs have been figured. To this is added the manner of occurrence of the species in each of the New England States, usually condensed into a general statement of one to three lines for each State, without citations of authority, even in the case of species of rare or casual occurrence. Nor is there a bibliography. The nomenclature is that of the A. O. U. Check-List, including the changes of the 14th Supplement published July, 1908.

The list includes 402 species and subspecies, with a supplemental list of 57 'Species Introduced or Erroneously Accredited' to New England. This list includes a considerable number of species, mostly game birds, introduced from the West or from the Old World, with a summary of the results of such introductions, from which it appears that the greater part have been unsuccessful. The 'List of the Aves' is thus a convenient and useful catalogue of the birds of New England, without adding greatly to previously existing knowledge of the subject. The work has been compiled with evident care and accuracy and is thus an entirely trustworthy and up-to-date record. The vernacular names include those of local use as well as the standard Check-List vernacular name. A tabular, separately paged Check-List of 10 pages accompanies the 'List,' in which is shown the distribution of the species by States, and also whether or not they are represented in the Society's collection.—J. A. A.

Osgood's 'Biological Investigations in Alaska and Yukon Territory.'²—During 1903 Mr. Osgood's work was done "along the middle Yukon River

¹ Occasional Papers of the Boston Society of Natural History, Vol. VII. Fauna of New England. 11. List of the Aves. By Glover M. Allen. Boston: Printed for the Society from the Gurdon Saltonstall Fund. June, 1909. 8vo, pp. 1-230.

² Biological Investigations in Alaska and Yukon Territory. I, East Central Alaska. II, The Ogilvie Range, Yukon. III, The Macmillan River, Yukon. By Wilfred H. Osgood, Assistant, Biological Survey. Prepared under the direction of Dr. C. Hart Merriam, Chief of Bureau of Biological Survey. North American Fauna, No. 30, October 7, 1909. Pp. 96, pls. i-vi, and 2 text figures (maps).

between Eagle and Circle and in the mountains west of Eagle near the sources of Mission Creek." In the early part of the summer of 1904 a trip was made into the Ogilvie Range northwest of Dawson, Yukon Territory, "to supplement the work done in 1903 in the mountains lying on the opposite side of the Yukon River, in Alaska." The trip to this latter region involved considerable expense, and for this reason had been necessarily deferred. In 1904 it was made possible through the coöperation of Mr. Charles Sheldon of New York, who "most generously bore practically the entire expense of the trip." In 1903 Mr. Osgood was accompanied by Mr. N. Hollister, and in 1906 by Mr. Charles Sheldon and Mr. Carl Rungius.

The report is divided into three parts, each treating of a distinct area; the three areas, however, are contiguous and biologically, as well as geographically, closely related. The physiographic and biological features of each are described, followed by extensively annotated lists of the mammals and birds observed or collected in each area. Three maps indicate the routes traveled, and the geographic relations of the localities visited. The four half-tone plates consist of eight illustrations, from photographs, of as many characteristic localities in the areas visited.

The ornithological observations are given, as already stated, in the form of annotated lists of the species met with. The 'Birds of East Central Alaska' (pp. 33-44) number 76 species; those of the "Ogilvie Range" list (pp. 58-65), 43 species; those of the "Macmillan Region" (pp. 84-92), 55 species. In preparing the Alaska list Mr. Osgood utilized Mr. N. Hollister's notes, and had opportunity also to examine specimens of some 25 additional species obtained by other collectors in this region, as mentioned in the introductory paragraph to this list, which contains extended notes on the habits of the Western Solitary Sandpiper, and a description of its newly hatched young. The 'Ogilvie Range' and 'Macmillan River' lists, though numbering fewer species, include several not recorded in the 'East Central Alaska' list. The observations here placed on record add greatly to our knowledge of the ranges and relative abundance of the birds and mammals of these regions, which were to a large extent previously unknown biologically. It is to be noted, however, that a number of species of both birds and mammals are formally included in the lists that were neither collected nor observed, but simply for the reason that from their known distribution they undoubtedly must occur in the areas here considered. While incidental mention of such species is desirable, it is hardly consistent with modern methods to include them in a formal manner with species "collected or observed."—J. A. A.

Seton on the Mammals and Birds of Manitoba.—This brochure¹ of 48 pages consists of annotated lists of the mammals and birds of the Prov-

¹ Fauna of Manitoba. (Mammals and Birds). By Ernest Thompson Seton, Naturalist to the Government of Manitoba. From British Association Handbook, Winnipeg, 1909. 12mo, pp. 1-47.

ince of Manitoba, the former numbering 59 species, and the latter 268 species and 5 additional subspecies. Both lists are very carefully annotated and throw much light on the ranges and manner of occurrence of the mammals and birds in Manitoba. They are thus welcome and valuable contributions to faunal literature. Here and there, mostly in the technical names, a few typographical errors mar the otherwise excellent appearance of the paper.

Manitoba, about 250 miles square in area, is faunally partly Canadian and partly Alleghanian; "a line drawn from the southeast corner to the northwest corner," says the author, "would nearly demark these zones."

As usual in all local bird lists of these days, the former abundance of many species, in comparison with their present scarcity, is noted. Thus the statements: "Formerly common and breeding; now nearly extinct"; "much less common than formerly," etc., after many of the species of wild fowl form a sad record of the passing away of species once apparently in no danger of extirpation. On the other hand, the Prairie Hen, almost unknown in Manitoba in 1882, has since "spread with cultivation, and is now abundant in all the settled parts" of the Province. A similar increase in extent of range and numbers is noted for the Mourning Dove, Burrowing Owl, and the unwelcome English Sparrow.

In this connection attention should be called to Mr. Seton's great work on the Mammals of Manitoba, just issued in two sumptuous royal octavo volumes,¹ with over 1300 pages of text, 100 plates, 68 maps, and several hundred text illustrations, the outcome of many years' observations. The ornithologist will be especially interested in the part treating of the faunal zones of not only Manitoba but of North America at large, with the accompanying full-page faunal map. There is naturally many incidental references to birds in the work; besides, there are few ornithologists who have not a strong interest in the life histories of mammals as well as birds.—J. A. A.

Cory's 'The Birds of the Leeward Islands.'²—This is (1) a summary of the ornithological results of two expeditions to the Leeward Islands for the Field Museum and (2) a list of the birds previously recorded from these islands, which include Arubu, Curaçao, Bonaire, Islas de Aves, Los Roques, Orchilla, Blanquilla, Los Hermanos, Testigos, and Margarita. Each of these islands is treated separately, its geographic position, extent, and character being stated, followed by its ornithological bibliography, and a list of the birds known to occur there, with a reference to the specimens taken by the Field Museum expeditions. These lists are summarized in a

¹ Life Histories of Northern Animals: An Account of the Mammals of Manitoba. Charles Scribner's Sons, New York, 1909. Two volumes, roy. 8vo. \$18.00 net per set.

² The Birds of the Leeward Islands, Caribbean Sea. By Charles B. Cory, Curator of Department of Zoology, Field Museum of Natural History Publication No. 137. Ornithological Series. Vol. I, No. 5, pp. 193-255, with map. Chicago, October, 1909.

'Table of Species and Subspecies,' which shows by means of symbols their distribution in the islands, and whether the record is based on specimens in the Field Museum, on previously published records, or specimens observed in life but not taken. The combined list numbers 161 species and subspecies, nearly all of which are represented by specimens in the Field Museum, collected in the spring of 1908 by Mr. John F. Ferry and Dr. Ned Dearborn, and in the early part of the year 1909 by Mr. Ferry. One species and three subspecies are described as new; the collectors' field notes are given, and in many cases extended technical annotations. The paper is thus a valuable summary of present knowledge of the ornithology of the Leeward Islands.—J. A. A.

Fisher on the Economic Value of Predaceous Birds and Mammals.—An eight-page paper¹ by Dr. A. K. Fisher states briefly the economic relations of the principal predaceous mammals and birds of North America to agriculture. The house cat is arraigned as the "sleek highwayman" that "destroys in the aggregate more wild birds and young poultry than all the native natural enemies combined," adding that a well-known naturalist estimates "that in the New England States alone 1,500,000 birds are destroyed annually by cats."

A good word is said in behalf of the much maligned hawks and owls, with the exception of two of the former and one of the latter, whose portraits in color, by Fuertes, are pilloried in the three plates that illustrate the paper, in order that they may be the better recognized and distinguished from the beneficial species that for the most part compose these two groups of useful birds. These species are the Sharp-shinned Hawk, the Cooper's Hawk, and the Great Horned Owl. Other birds of usually unsuspected beneficial traits are the Great Blue Heron and the Bittern, which prey upon injurious rodents; certain gulls and terns also gorge themselves on grasshoppers and crickets, while some of them feed extensively on field mice and other small rodents. Crows and Jays, while effective destroyers of pests, are seriously destructive of the eggs and nestlings of useful wild birds.

The educational information here presented will be widely distributed among agriculturists, and should be effective in placing the matter in a proper light before those most interested in the suppression of farm pests.—J. A. A.

Beebe on the Breeding of Canada Geese in Captivity.—Apropos of industries connected with semi-wild birds, Mr. Beebe, in a recent number of the 'Zoölogical Society Bulletin,' published by the New York Zoölogical Society, gives an account of the rearing of Canada Wild Geese on Chinco-

¹ The Economic Value of Predaceous Birds and Mammals. By Dr. A. K. Fisher, in Charge of Economic Investigations, Biological Survey. Yearbook of Department of Agriculture for 1908 (1909), pp. 187-194, pll. i-iii (colored). Also separate.

teague Island, Virginia, for their commercial products.¹ More than fifty years ago, he states, Mr. J. W. Whealton secured a pair of wing-tipped Wild Geese, which "were the nucleus of his present flock of 450 birds." New blood has been added at frequent intervals, thus avoiding in-breeding. Mr. Beebe's report of this experiment is detailed and full of interest, particularly his account of the habits of the species in confinement and the manner in which the birds are cared for and controlled. The geese are plucked several times a year for their feathers, and thus yield a small revenue. Other species of geese, and several species of swans, are likewise reared on this island by Mr. Whealton, and various crosses have been made between different species of geese, the hybrids being in some cases fertile, in others not so.—J. A. A.

Shufeldt on the Osteology of *Arachnothera magna*.²—Dr. Shufeldt here describes in detail the osteology of one of the larger species of the family Nectariniidæ, in comparison with that of the Cercæidæ, Meliphagidæ, Certhiidæ, and Trochilidæ. He finds that osteologically the species is distinctly passerine, with faint resemblances in some features to the Trochili, but these "have no bearing whatever upon affinity." The plate is a lateral view of the skeleton, from a photograph by the author.—J. A. A.

Macpherson's 'The Home-Life of a Golden Eagle.'³—This is a most interesting narration of Mr. Macpherson's success in watching and photographing a pair of Golden Eagles and their young in the Grampian Hills of Scotland during the breeding season of 1909. The eyrie was discovered on the 23d of April, when it contained two eggs. It was first visited by the author and the eggs photographed, of course with the eyrie and its surroundings, on May 3, when a shelter of stones was constructed for the concealment of the camera. On the 19th of May there were two eaglets in the nest, apparently about six days old; they were photographed, and arrangements were completed for photographing later the old birds at the nest. How successfully this was carried out is recorded in the thirty-two plates illustrating the present brochure, where not only the young birds are shown at various stages of growth and in many attitudes, but the old birds as well on their visits to feed and care for the young. Only one of the young birds reached maturity, leaving the eyrie about the end of July when about eleven weeks old. The narrative is a record of patience and

¹ Breeding Canada Wild Geese on Chincoteague Island, Va. By C. William Beebe. Zool. Soc. Bull., No. 36, October, 1909, pp. 576-579, with half-tone illustrations.

² On the Comparative Osteology of the Passerine Bird *Arachnothera magna*. By R. W. Shufeldt, M. D., C. M. Z. S. Proc. Zool. Soc. London, 1909, pp. 527-544, pl. lxviii.

³ The Home-Life of a Golden Eagle Photographed and described by H. B. Macpherson With thirty-two mounted Plates London Withby & Co., 326 High Holborn W. C. MCMIX. Large 8vo, pp. 1-45, pll. 1-32 (mounted photographs).

endurance under adverse and trying weather conditions, of tact and skill in securing results that minutely reveal the home-life of a family of Golden Eagles. The story is simply told and most admirably illustrated, and forms a memorable contribution to the life history of "the King of Birds."—J. A. A.

Whymper's 'Egyptian Birds.'—Mr. Whymper's sumptuously printed and beautifully illustrated volume,¹ he tells us, is "for the wayfaring man who, travelling this ancient Egypt, wishes to learn something of the birds he sees." About three-score species are described and illustrated, being selected from the more common and characteristic birds of the lower Nile Valley. On plate 2 some half-dozen different species are depicted in flight, to assist the reader to identify those most frequently seen by shape and pose in flight. The other fifty plates illustrate as many species in color. Each is described briefly in the text, the description being followed by several pages of biographical matter, relating especially to the Egyptian environment. A briefly annotated list of the birds of Egypt, comprising 356 species, follows the general text of this attractive book, which doubtless will prove of much interest and assistance to the ornithologically inclined Egyptian tourist.—J. A. A.

Job's 'The Sport of Bird Study.'—"Of course there's nothing wrong in shooting lawful game in moderation, but it's simply this, that the new way is so much better than the old that we don't care for shooting. Gunners can hunt only in the fall, but our hunting lasts the whole year. Their game, too, is limited to a few kinds, while *we* have every sort that flies." This is the key-note to Mr. Job's latest book, 'The Sport of Bird-Study.'² The first chapter deals with the general subject of 'hunting with a camera,' its advantages as an outdoor sport, available at all seasons of the year, and as an aid and incentive in bird and mammal study. "It destroys no life, yet yields results far superior to those of gun and flesh-pot in our stage of civilization where we need not shoot to eat."

In the present book the author takes us on numberless excursions camera-hunting, recounting his successes, and some failures, in photographing all sorts of birds, usually in the nesting season, so that the pictures show the old birds on their nests, or feeding their young, or the nests with eggs in situ, or young birds at different stages of development. The pictures are

¹ Egyptian | Birds | for the most part seen in the Nile Valley | By | Charles Whymper | London | Adam and Charles Black | 1909 — 8vo, pp. x + 222, with 51 full-page illustrations in color and 13 line drawings in text. Price, 20 s. net.

² The Sport of | Bird-Study | A Book for young or active People | By | Herbert Keightley Job | Author of "Wild Wings" and "Among the 'Water-Fowl.'" | Member of The American Ornithologists' Union, etc. | Profusely illustrated with Photographs from | Life by the Author | [Vignette] New York | The Outing Publishing Company | MCMVIII — 8vo, pp. xvi + 284 + iv, with 130 half-tone illustrations (= 78 full-page plates). This work is also issued in another edition, which has an appendix containing an annotated list of the birds of Litchfield County, Connecticut (216 species). This edition is designated as the "Connecticut Edition." This we have not seen.

excellent, and the narrative is full of interest and instruction for the amateur bird student and the devotee of the camera a-field. The book is divided into fifteen chapters, illustrated with sixty half-tone plates, representing about twice that number of successful 'exposures.' The subjects range from the upland gamebirds, hawks, and owls, and on through the families of birds to the end of the list. The work concludes with a simplified list of the orders and families of birds, only "popular English names" being used for the designation of the groups, and a bird calendar for the year, by seasons and months. Those familiar with Mr. Job's previous works need not to be assured that the present volume is well worth their attention, and that they will find in it much new bird-lore freshly gathered from the fields and woods and entertainingly imparted.—J. A. A.

Verrill on the Birds of San Domingo.¹—In this paper are recorded 112 species, collected by Mr. A. H. Verrill between December 21, 1906, and April 13, 1907. Included in this number are the introduced Guinea Fowl, and a form of Grackle thought by Mr. Verrill to be a distinct species but which appears to be merely the female of *Holoquiscalus niger*.

Two species in the collection were found to be undescribed, one of which, the resident form of the Grasshopper Sparrow, has already been named by Mr. Hartert. The other is here described for the first time under the name of *Buteo tropicalis*. This supposed species, of which the type is said to be an adult male, appears to be closely related to *B. borealis calurus* and *B. b. umbrinus* but no comparisons are made with either form. The upper surface of the tail is described as rusty-ferrugineous, crossed by about eight dusky bands and if this character is constant the species is probably valid.

The Cape May Warbler was found to be abundant and apparently represented by two forms differing somewhat in coloration. The authors state that "as young birds in nestling plumage, as well as females containing eggs ready for the nest were obtained" they "consider it possible to separate the resident bird from the northern form as a local variety or subspecies." The writer has seen the majority of the specimens collected by Mr. Verrill and considers them all typical *Dendroica tigrina*, the highly colored form supposed to represent a resident race being undoubtedly the adult male, while the duller one is the immature male. The "young birds in nestling plumage" are doubtless the females in their first winter plumage. It may be recalled that this species as well as the Myrtle Warbler was long ago recorded as breeding in Jamaica but the record lacks confirmation. It is not probable that an Antillean race of the Cape May Warbler would begin to nest before the middle of March, and the conclusion is inevitable that the evidence as to the existence of such a race is not satisfactory.

In regard to the local distribution of the resident birds the authors write: "The avifauna of San Domingo is remarkable for the number of species

¹ Notes on the Birds of San Domingo, with a List of the Species, including a New Hawk. By A. E. Verrill and A. Hyatt Verrill. Proc. Acad. Nat. Sciences of Philadelphia, 1909, pp. 352-366. "Issued, September 21, 1909."

peculiar to the island, many of which are confined to special isolated localities. Many species are met with only at certain seasons, while others, usually very rare, are abundant in places where their food plants occur, during the season when these plants are in fruit."

There are interesting notes on the habits of many of the species peculiar to the island, which includes such isolated forms as *Dulus* and *Calypso philus*. The occurrence of fifteen species of North American warblers is worthy of remark.— W. DE W. M.

G. B. Grinnell on the Wild Turkey.— In two recent numbers of 'Forest and Stream' Dr. George Bird Grinnell has given a very full account of "America's Greatest Game Bird," the Wild Turkey,¹ including its names, geographical races, former and present range, and habits. Dr. Grinnell quotes Mr. Brewster² respecting its former range in the New England States, and presents much (in part previously unpublished) information concerning its former presence in southern South Dakota, Nebraska, and Colorado. It appears to have never quite reached the Black Hills, and that it "seldom or never crossed the divide between the north and south forks of the Platte," but appears to have extended up the Missouri River as far as the mouth of the Cheyenne River.

As is well known, the Wild Turkey has been exterminated over much of its former range. Says Dr. Grinnell: "In the Southern States turkeys have always been abundant and their stronghold is still there — parts of Virginia, the Carolinas, Georgia, Alabama, Mississippi, Louisiana, Arkansas, Missouri and Texas. Merriam's turkey is said to be almost extinct in Colorado, but is still abundant in Arizona and New Mexico. That there should be occasional outlying colonies of a few birds in Iowa and Nebraska . . . seems very surprising, but such colonies cannot last long unless protected by the owners of the land on which they live. . . . Throughout the farming country of the North and West the turkey is gone and gone forever."— J. A. A.

Report of the Chief of the Bureau of Biological Survey, 1909.³— This Report, by Dr. C. Hart Merriam, treats, as usual, of the varied activities and the interests subserved by this important Government Bureau, the functions of which are primarily economic and incidentally scientific. The work, as defined by Congress, comprises: (1) Investigations of the economic relations of birds and mammals; (2) investigations concerning the geographic distribution of animals and plants with reference to the determination of the life and crop belts of the country; (3) supervision of

¹ The Wild Turkey. America's Greatest Game Bird. By George Bird Grinnell. Forest and Stream, Vol. LXXIII, Nos. 22 and 23, Nov. 27 and Dec. 4, 1909, pp. 852-854, 891, 892, with 2 half-tone illustrations.

² Birds of the Cambridge Region.

³ From Annual Reports of the Department of Agriculture. 8vo, pp. 24.

matters relating to game preservation and protection, and importation of foreign birds and other animals. The first and third are almost strictly economic in their relations and output, and are of the highest importance to the general welfare. It is therefore fortunate that so many great economic interests are placed where they can be so well safeguarded and promoted.

The second division of the work of the Bureau requires investigations of a more strictly scientific bearing, and through this provision it has been possible to prepare and publish the long series of monographic and faunistic papers that have so conspicuously contributed to the advancement of North American mammalogy and ornithology. They have, however, been grudgingly and insufficiently provided for by a body of law-makers unable to appreciate the value of scientific research as such, or which has no obvious economic bearing.

The present report, like its predecessors, is thus largely a report dealing with such economic problems as the destruction of house rats, ground squirrels, field mice, pocket gophers, kangaroo rats, wolves and coyotes, the relation of birds to the boll weevil and other insect pests and to fruit-growing, and the food of shore birds and wild ducks. In respect to the shore birds, it is stated that a bulletin has been prepared "with special reference to their breeding resorts, their winter homes, and their migration routes," which can not fail to be of special interest to ornithologists. In respect to wild ducks, a bulletin is in preparation with reference to legislation by which species threatened with extinction "may be preserved either by being bred in a state of partial domestication, or else ponds and streams surrounded by tracts of suitable marshy land may be set apart as duck preserves, where the ducks may resort to breed unmolested."

Under the head of Geographic Distribution, the progress of field work is noted; reference is made to Mr. Nelson's report on the rabbits of North America, "economically important both as a source of food and because of the great damage they do in various parts of the country"; and to the gathering of data on the migration and distribution of birds and mammals. "Work on the distribution maps has been pushed as rapidly as the exigencies of other and more pressing work permitted."

As already stated, the protection of game, under various acts of Congress, forms an important branch of the work assigned to the Bureau of Biological Survey, which includes also a constant supervision over the importation of birds and mammals from foreign countries. The importance of this feature of the work can hardly be overestimated, when we recall the English Sparrow pest, the threatened pest of Starlings, already upon us, and the mongoose and rabbit pests that are afflicting other countries, through their injudicious admission in the past. Interesting statistics are given of the importations during the past year of game birds and their eggs and of cage birds of various species. There is also mention of the new bird reservations established during the year, among which is the Hawaiian Islands reservation, which, comprising a number of islets in the Pacific

Ocean, includes "the largest and most famous breeding colonies of sea birds in the world." Under work outlined for 1910, it is stated that it is the intention to publish a ten years' review of bird and game protection, covering the first decade of the present century, which completes also the first decennial period of federal bird and game protection under the Lacey Act. Congress has now made provision for the maintenance of the national bird reservations, which will soon all be under charge of wardens provided by the Government. The work of this division of the Bureau has thus assumed an importance and breadth of scope that seemed almost impossible of achievement a decade ago.— J. A. A.

Fifth Annual Report of the National Association of Audubon Societies.¹

— The Annual Report of the National Association of Audubon Societies for 1909 occupies some sixty pages of the November-December number of 'Bird-Lore,' with many half-tone illustrations. It comprises the address of the President, William Dutcher, the report of the Secretary, reports of the Field Agents (Edward Howe Forbush in New England, William Lovell Finley on the Pacific Coast), the reports of the State Societies (thirty-three in number) by their respective secretaries, a list of the members and contributors, and the report of the Treasurer. The president's address considers 'Education as a Factor in Audubon Work' and the 'Relation of Birds to Man.' The chief function of the Association is held to be the education of "the whole mass of our fellow citizens regarding the value of wild birds, and the intimate relation that exists between them and agriculture." Success in this means the preservation of the birds. While it may not be possible to interest all in their preservation there is a hope that adequate bird protection may be realized "in educating the children to a proper realization of the importance of birds to the community."

The past-year, says the secretary, "has been marked by some of the fiercest struggles we have ever encountered with the enemies of bird and game protection." The sources of opposition have been the market men, market hunters, bird dealers, and the large millinery interests. The gains and losses through legislative action are shown in a comparative tabular statement. The gains include the enactment of the 'Model Law' in two States, the prohibition of spring shooting in two others, and the protection of particular species in still others. The losses include the removal of protection from certain species or groups of birds, as the hawks and owls, herons, loons and grebes, etc., in a number of States, and the extension of the spring shooting season in others. A list is given of the Reservations, over fifty in number, established mainly by President Roosevelt during the period 1903-1909. Other bird reservations have been provided by different States, and privately through the purchase of islands occupied as breeding resorts of sea birds.

¹ Bird-Lore, Vol. XI, 1909, pp. 281-348, with numerous half-tone illustrations.

The reports of the State Audubon Societies, given in alphabetic sequence, occupy some twenty pages, and show the progress or otherwise of bird protection by States throughout the country.

This Report of the National Association, like those of former years, is a record of strenuous effort, directed as heretofore by a resourceful, zealous, and alert president, strongly supported by unselfish individual endeavor on the part of thousands of members widely scattered throughout the country and ardently coöperating for a common purpose. It is also a report of encouraging progress, and of hopeful outlook.—J. A. A.

Macoun's 'Catalogue of Canadian Birds.'¹—The first edition of this work appeared in three parts — Part I in 1900, Part II in 1903, and Part III in 1904. This new edition has been in part rewritten and brought down to date through the addition of much new matter, based largely on the recent field work of the Survey. The character and scope of the work was very fully described in this journal, in notices of the several parts of the first edition as they appeared,² which apply equally well to the present edition. A few words from the preface (signed by the senior author of this edition and author of the first edition), may be quoted in explanation of what has been attempted: "In compiling this catalogue the authors have endeavored to bring together facts on the range and nesting habits of all birds known to reside in, migrate to or visit, the northern part of the continent. In addition to the Dominion of Canada they have therefore included Newfoundland, Greenland and Alaska. The nomenclature and the numbers given in the latest edition and supplements of the Check-list published by the American Ornithologist's Union have been made the basis of arrangement of the catalogue. The order followed in the notes on each bird is, as a general rule from east to west. Greenland is generally cited first and British Columbia and Alaska last. . . . Until the publication of the first edition of this Catalogue, no attempt had been made to produce a work dealing with the ornithology of the region embraced in the Dominion of Canada since the publication of the *Fauna Boreali Americana* by Swainson and Richardson, in 1831." "Two hundred and sixty-seven species" were given in this work. It would be of interest to know how this number compares with the number contained in the present 'Catalogue,' and whether any are included in the second edition that were not contained in the first; but we find on information on these points, the numeration being that of the A. O. U. Check-List is non-consecutive, and we are unable to find any statement of the matter, and have not at this writing time to count them.³

¹ Canada | Department of Mines | Geological Survey Branch | Hon. W. Templeman, Minister; A. P. Low, Deputy Minister; R. W. Brock, Director. | — | Catalogue | of | Canadian Birds | By | John Macoun, | Naturalist to the Geological Survey, Canada, | and | James M. Macoun | Assistant Naturalist to the Geological Survey, Canada, | [Coat of Arms] | Ottawa: | Government Printing Bureau | 1909 | [No. 973.]—Svo, pp. i-viii + 1-761 + i-xviii.

² Cf. Auk, Vol. XVII, Oct., 1900, pp. 394, 395; Vol. XX, Oct., 1903, p. 441; Vol. XXII, Jan., 1905, pp. 99, 100.

³ On the utility of numbering lists, see *antea*, p. 96, footnote.

The preface states in detail the places, dates, and names of the observers working under the auspices of the Survey in different years. The senior author, a botanist by profession and an ornithologist incidentally, says that "although attending to other subjects which claimed most of his time, had constantly before him the necessity of the present work and has been collecting notes and observations for it during all his journeys since 1879, while his assistant, Mr. J. M. Macoun, has carried on similar work since 1885." The notes from these dates to 1889 appear respectively under the names of J. Macoun and J. M. Macoun. "Practically all of the notes made by either of us since that time are credited to Mr. William Spreadborough," who since 1889 accompanied one or the other of the authors to the field, although during five seasons he worked quite independently of either. "It detracts nothing," says the senior author, "from the importance of other notes published for the first time in this Catalogue to say its chief value is to be found in the matter credited to Mr. Spreadborough. His notes, revised by us, cover nearly the whole Dominion from Labrador and Hudson Bay to Vancouver island and north to the Peace river. . . . The greater part of the compilation of the new material for this edition of the Catalogue has been done by my assistant Mr. J. M. Macoun."

The above extracts indicate the sources and chief basis of this great work on the distribution and ranges of Canadian birds, but all published material and much unpublished matter from correspondents, whose names and places of residence are given in the preface, has also been utilized. A two-page "list of principal authorities cited," numbering about forty titles, follows the preface. While a great deal of the matter given in the first edition is here reprinted, the chief value of the Catalogue to working ornithologists is the new notes on distribution now added. We are also privately informed that specimens of everything found south of the remote parts of Hudson Bay and the Mackenzie River exist as vouchers for the nomenclature employed. It is further stated in the preface that "as the authors expect to publish annually an addendum to this catalogue the necessary corrections will be made from time to time and the co-operation of collectors and observers is solicited for the work."

The field work here covered, and the area embraced is so extensive, that the labor of compiling such a mass of observations cannot readily be appreciated. As a result we have here brought together the principal facts of the subject, condensed into a volume of less than 800 pages. The work is therefore so important, and apparently so well done, that we reluctantly refer to the fact that the statement that the nomenclature is made up from the A. O. U. Check-List and latest supplements is hardly borne out by the body of the text. It would not be right to expect to find in it the few changes in nomenclature made in the fifteenth supplement, published in July, 1909; but it is rather surprising to find that the very numerous changes published in the fourteenth supplement, in July, 1908, have been overlooked although papers on Canadian birds published in the volume of 'The Auk' containing this supplement are freely cited. We note with satisfaction, however,

that the possessive form of bird-names derived from names of persons is consistently rejected.—J. A. A.

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NOTES AND NEWS.

THE Fifth International Ornithological Congress will be held in Berlin May 30 to June 4, 1910, under the Presidency of Dr. Anton Reichenow. The Congress will be organized in six sections: I, Anatomy and Palæontology; II, Systematic Ornithology and Geographical Distribution; III, Biology and Oölogy; IV, Bird Protection; V, Introduction and Acclimatization; VI, Aviculture. The official languages of the Congress will be German, English, French, and Italian. A detailed program will be issued in January. All communications for the Congress should be addressed: V. Internationaler Ornithologen Kongress, Berlin N. 4, Invalidenstr. 43.

ORNITHOLOGISTS will be interested to know that in the alterations and additions to the Academy of Natural Sciences at Philadelphia that have just been completed the Ornithological Department has been allotted half of the top floor of the main Museum building, directly over the exhibition bird gallery. There is an abundance of light in the new quarters and the collection of skins is arranged to better advantage than ever before. The specimens, numbering upwards of 50,000, are arranged in 200 metal cases carrying trays 16×18 inches, and 50 large cases with trays 3×6 feet, while at the west end is a spacious work room and meeting room where the Delaware Valley Ornithological Club now holds its sessions. The exhibition series of mounted birds numbers about 10,000, besides which is a large collection of osteological material, nests and eggs.

THE Museum of Comparative Zoölogy at Harvard University has received during the past year the most noteworthy accessions to its bird collection in its history. These include, as the most important, the E. A. and O. Bangs collection, containing approximately 24,000 skins, chiefly from North and Middle America and the West Indies. Most of these from Central America were taken by Mr. Wilmot W. Brown and Mr. C. F. Underwood, well known as intelligent and energetic collectors, the former noted for his skill in preparing skins of birds and mammals. The specimens have been determined by Mr. Outram Bangs, with the assistance of Mr. Ridgway and Dr. Richmond. They also include the types of the many new forms described in recent years by Mr. Bangs. Another gift of unusual importance consists of several thousand specimens from the interior of central and western China, presented by Mr. John E. Thayer. A collection of over 3000 skins collected in Palestine have been acquired by purchase. A considerable number of other skins and mounted specimens of unusual interest have also been acquired, by gift or purchase, from other sources.

DURING the year 1909, the American Museum of Natural History in New York received 600 birds from Nicaragua, collected by Mr. William B. Richardson, and other collections from Formosa, Japan, and the Philippine Islands. The number of Nicaragua birds collected by Mr. Richardson for the Museum now numbers nearly 2000, representing about 400 species.

In addition to several new 'habitat groups' completed during the year, a large group of Paradise Birds has been installed, numbering about 80 species, and including nearly all of the most remarkable and striking forms of the family, the material for this large and exceedingly beautiful group having been contributed by Mrs. Florence L. Sturgiss of New York. The research collection of birds now numbers about 70,000 specimens; the exhibition collection about 10,000, exclusive of over a hundred bird groups, about one fourth of which are large 'habitat' groups, a notice of which was recently published in this journal (Auk, April, 1909, pp. 165-174, pll. i-iv). In addition to the above material, belonging to the Museum, Dr. J. Dwight, Jr., has been provided with storage for his private collection of bird skins, numbering about 25,000 specimens, which are now conveniently accessible for purposes of research.

THE decease of Mr. Charles K. Worthen, who was suddenly stricken last May (see Auk, 1909, p. 332) marks the passing of the last of the large dealers in North American mammal and bird skins, bird's eggs and other scientific material. Beginning business in 1873, he became known at home and abroad where many of his specimens are now to be found in both public and private collections. In the settlement of his estate, his large stock of bird-skins, some 7000 in number, was purchased by Dr. Jonathan Dwight, Jr., and Mr. J. H. Fleming, for their private collections. No less than 700 species and races of the North American list are represented, many of them rare and in large series. Among noteworthy species may be mentioned the Carolina Paroquet, the Ivory-billed Woodpecker, the White, the Snowy and the Reddish Egrets, the Wood Duck, the White Gyrfalcon, the Swallow-tailed, the Mississippi and the Everglade Kites, the Yellow and the Black Rails—all represented by large series of specimens, while rarities in greater or less abundance may be found among the Gulls, Petrels, Geese, Owls, Turkeys, and the smaller land birds.

A last Attempt to Locate and Save from Extinction the Passenger Pigeon.—Through the interest and generosity of Col. Anthony R. Kuser, I am able to offer the following award.

Three hundred dollars (\$300.) for information of a nesting pair of Wild Passenger Pigeons (*Ectopistes migratorius*), UNDISTURBED.

Before this award will be paid such information must be furnished (exclusively and confidentially), as will enable a committee of expert ornithologists to visit the nest and confirm the finding. If the nest and parent birds are found undisturbed, the award will be promptly paid.

[Signed] C. WILLIAM BEEBE.

Until January 1, 1911, during Mr. Beebe's absence from America, all information concerning the existence of Passenger Pigeons should be sent to C. F. Hodge, Clark University, Worcester, Mass.

In making this offer Col. Kuser withdraws his former offer of one hundred dollars (\$100.00) for a freshly killed Wild Pigeon. He does this because of the great danger of complete extermination.

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8vo, pp. 71, printed on one side of the page, 25 cents.

Check-List of North American Birds. Second and revised edition,
1895, cloth, 8vo, pp. xi+372. \$1.15.

Code of Nomenclature. 1892. Paper, 8vo, pp. iv+72. 25 cents.

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pp. lxxxv. 50 cents.

Index to The Auk (Vols. I-XVII, 1884-1900) and Bulletin Nuttall
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1908. Cloth, \$3.75; paper, \$3.25.

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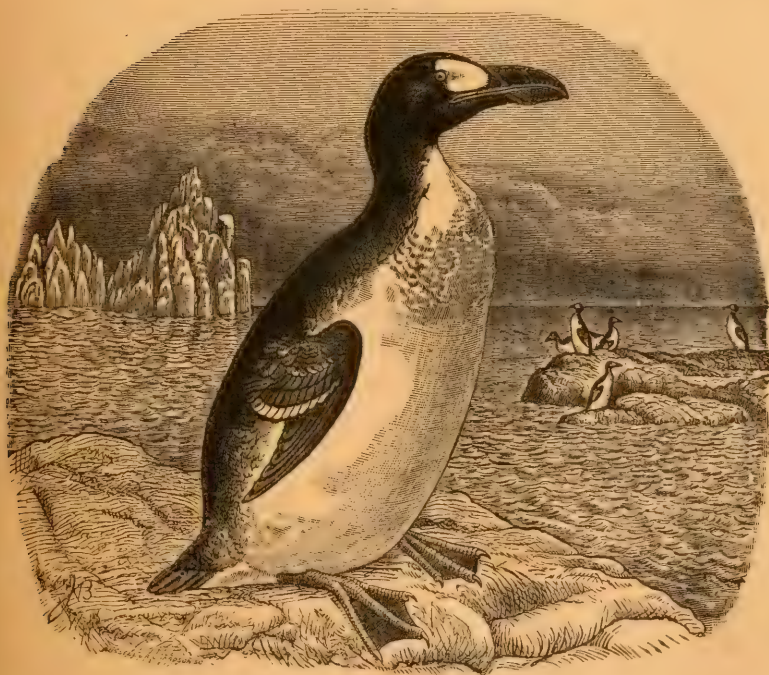
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*Hastily yours,
J. H. Miller*

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No. 2.

IN MEMORIAM: JAMES CUSHING MERRILL.

BORN MARCH 26, 1853.—DIED OCTOBER 27, 1902.

BY WILLIAM BREWSTER.

With Portrait (Plate VII).

JAMES CUSHING MERRILL, third of that name in direct descent, was born in Cambridge, Massachusetts, on March 26, 1853. Both branches of his family were of old New England stock, derived originally from England. His father, who died when he was about fifteen years of age, was a lawyer by profession, as was also his grandfather, Judge Merrill of Boston, who married Ann Saltonstall of Salem. His mother was (or, rather is, for she is still living) Jane (Hammond) Merrill. I first made his acquaintance at a school which we entered together more than half a century ago. He was then a shy, graceful, slenderly-built boy, already interested in Natural History and possessed, if I remember rightly, of a small collection of end-blown birds' eggs and native butterflies. After attending several private schools in Cambridge, and the well-known one then kept by Mr. Dixwell in Boston, he went to Germany where he remained for a year or two, and began the study of medicine. On returning to this country he entered the medical department of the University of Pennsylvania from which he was graduated in 1874. About a year later he received the appointment of Assistant Surgeon in the United States Army. His first assignment was to St. Louis Barracks, Missouri, in 1875. After this he was stationed

successively at the following army posts:—Fort Brown, Texas, from February, 1876, to June, 1878; Fort Shaw, Montana, from May, 1879, to May, 1880; Fort Custer, Montana, from June, 1880, to the autumn of 1883; Columbus Barracks, Ohio, from 1883 to 1886; Fort Klamath, Oregon, from November, 1886, to August, 1887; Watervliet Arsenal, New York, September–October, 1887; Frankford Arsenal, Pennsylvania, October, 1887, to November, 1889; Fort Reno, Oklahoma, November, 1889, to February, 1891; Fort Sherman, Idaho, from October, 1894, to some time early in the year 1897.

The above data, taken mainly from letters and bird skins in my possession, show how very many of his maturer years were spent by Dr. Merrill in wild and remote places. This period may be said, indeed, to have represented the better part of his life, in more senses than one. Throughout it he enjoyed the constant companionship of his devoted mother who shared with him the isolation and privations inseparable from such an experience, and whose intellectual, as well as maternal, pride and sympathy in his professional and scientific work must have added immeasurably to his happiness and comfort. Everywhere he made warm friends among his brother officers and the enlisted men under his care, winning easily their affection and respect by the fidelity with which he performed his professional duties as Post Surgeon. To these he gave — as was fitting — his first allegiance, never allowing anything else to interfere with them. Fortunately they were not ordinarily so onerous as to prevent him from devoting much of his time to other interests, chief among which was the study of natural history. This interest, as we have seen, was not wanting in his early youth. With advancing years it deepened and broadened until it became, next to his profession, the ruling passion of his life. Every branch of zoölogy attracted him, but he gave his attention mainly to ornithology and entomology. Like many another army officer, he was a keen sportsman and a persistent fisherman. Opportunities for indulging all these kindred tastes were not lacking at the frontier posts where he was stationed, and he improved them to the utmost, devoting an especially large share of his leisure time to studying and collecting birds, with their nests and eggs, and insects, particularly beetles. He did not, however, attempt to form a private

collection, but with characteristic generosity gave nearly all his specimens to personal friends and to museums; most of the nests and eggs passing, through Major Bendire's hands, into the National Museum, and of the birds into the collection of the writer of this memoir. Altogether, Dr. Merrill's life on the frontier may be said to have been not less profitably than happily spent. It is a pity that it could not have been continued still longer since it suited him so perfectly in every way.

Although qualified both by nature and by training for dealing with abstruse and difficult problems of science, and by no means without interest in its purely technical side, Dr. Merrill was distinctively a field naturalist. His published ornithological writings relate almost exclusively to the habits and distribution of western birds. They are not numerous, but their quality is of high order, for he was an exceptionally accurate and intelligent observer, as well as a pleasing and finished writer. The earliest, and perhaps also most important one of any length, is that relating to the birds which he found in 1876, 1877, and 1878, in the neighborhood of Fort Brown, Texas. Although this region had been visited in 1863 by a competent British ornithologist, Mr. H. E. Dresser, its wonderfully rich and varied avifauna remained comparatively unnoticed and unknown until attention was called to it by Dr. Merrill. He took there specimens of no less than twelve species and subspecies of birds which, up to that time, had not been ascertained to occur anywhere north of the Mexican boundary; besides many nests and sets of eggs then undescribed or of exceeding rarity.

Other papers, of almost equal value and importance, are his 'Notes on the Birds of Fort Klamath, Oregon,' published in 1883, and his 'Notes on the Birds of Fort Sherman, Idaho,' which appeared in 1897. At Fort Brown he obtained a Goatsucker, at Fort Klamath a Horned Lark, and at Fort Sherman a Song Sparrow, which have been found to represent forms previously unknown to science, and now bear his name.

Although these and others of his ornithological papers are excellent of their kind, no one of them is equal in literary merit to his Memorial of Major Bendire, published in 1898. He not only admired, but loved, the bluff, upright Major — as, indeed, who did not? — and this tribute to the memory of his friend is an altogether admirable piece of work.

Despite his extensive experience with many of the larger mammals of our western plains and mountains, his only papers concerning them of which I have any knowledge are one 'On the Habits of the Rocky Mountain Goat,' published in 1880, and another entitled 'A Silver Tip Family' (of Grizzly Bears), which appeared in 1897.

In a letter written at Fort Custer, on September 5, 1883, Dr. Merrill says: "I have recently received an invitation to the convention of the A. O. U., and greatly regret that it will be impossible for me to be present at that time." This shows that he was among the select few who were asked to help organize our Union; and that, had he not been prevented by military duty from taking the long journey to New York he would have been one of its Founders. As it was, he was elected an Active Member at this meeting, afterwards becoming a Life Member and Fellow. He was one of the earliest members of the Boone and Crocket Club; a Corresponding Member of the Linnæan Society of New York; an Associate Member of the Boston Society of Natural History; a Corresponding Member of the Nuttall Ornithological Club; a Member of the Biological Society of Washington; a Member of the Society of Colonial Wars; an Active Member of the Association of Military Surgeons; a Member of the Washington Academy of Sciences; a Member of the Association of Medical Libraries; a Member of the Cosmos Club of Washington; a Member of the Devil's Island Shooting Club in Currituck Sound; and a Member of the Tourelle Fishing Club in Canada.

Early in February, 1891, to his "intense surprise," as he wrote me at the time, Dr. Merrill was summoned from Fort Reno to the Surgeon General's Office in Washington to take "charge of all medical supplies and medical property of the Army." This employment was novel to his experience and probably not altogether to his taste; but he expressed no dissatisfaction with it, and continued to apply himself to it for upwards of three years. On November 16, 1892, he was married to Mary Pitt Chase of Maryland. On March 13, 1894, he was made a full surgeon in the Army, with the rank of Major. In October of the latter year he was again ordered to a western post, Fort Sherman, Idaho, where, with his wife, and mother, he remained for a little more than two years, revelling once more, as it proved for the last time, in the free out-of-

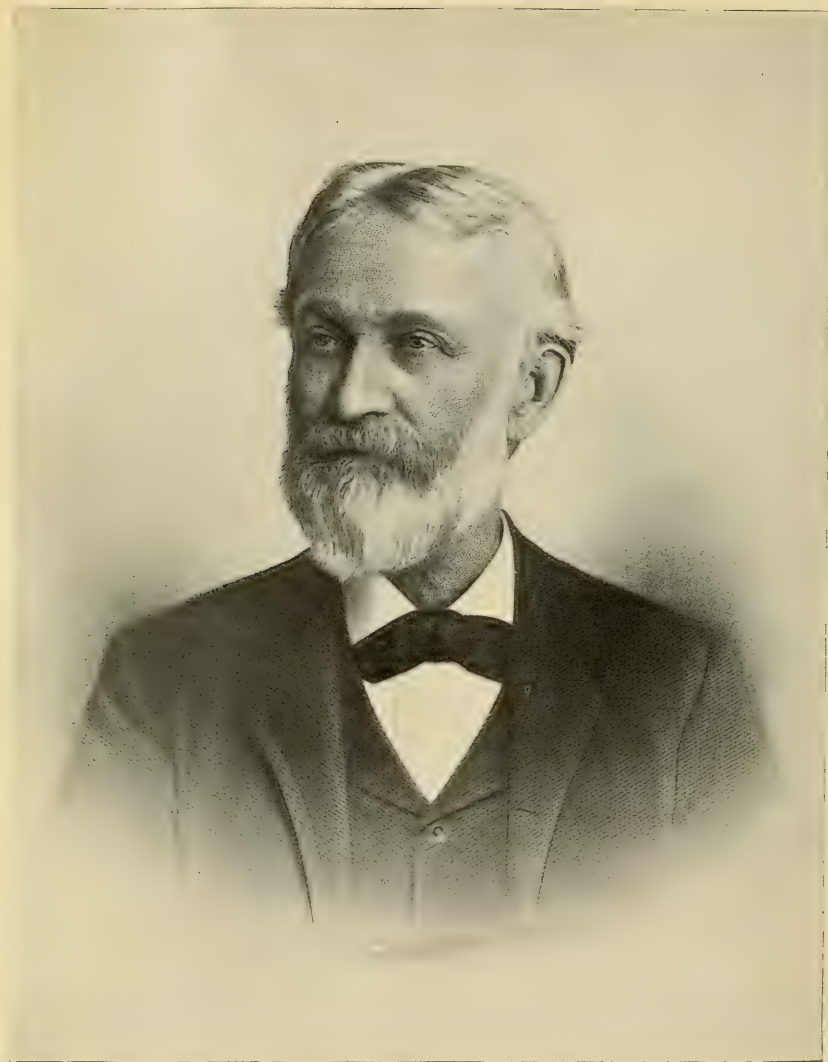
door life and making a considerable collection of birds. When he returned to Washington, early in 1897, it was to receive the appointment of Librarian at the Surgeon General's Office. Here he spent the brief remainder of his days, performing, with his accustomed steadfastness and ability, tasks perhaps not altogether uncongenial, but obviously irksome to a man of his temperament, and so very arduous and confining, that, by degrees, his health and strength yielded to the strain. Not so his courage, for up to the very last he maintained a brave and serene front; applying himself unremittingly to his work whenever his strength permitted, and almost up to the last calming the anxiety of intimate friends by the cheerful assurance that he was not really ill. But by the summer of 1902, his condition had become so obviously serious that he was induced to spend a few weeks at White Sulphur Springs, Virginia, in the hope that the rest and change might do him permanent good; they proved of no avail, however, and he died of chronic nephritis in Washington on October 27, 1902.

When in the prime of life, Dr. Merrill was a fine and indeed distinguished-looking man, rather tall and very strongly built, with that erect, military bearing characteristic of army officers the world over. He was an excellent linguist, speaking two foreign languages, French and German, and reading and translating no less than nine others: viz. Latin, Greek, Italian, Spanish, Portuguese, Dutch, Danish, Swedish and Russian. He had refined yet very simple tastes, quick intelligence, sound judgment, high ideals of honor, manliness and duty, untiring patience and industry. Although fearless, self-reliant and inflexible of purpose, in the discharge of his customary duties, his modesty respecting his general ability and desserts amounted almost to humility, and, no doubt, prevented him from aspiring to tasks and honors which otherwise he might have undertaken and achieved. In speech, as in thought, he was direct and absolutely sincere, yet very kindly, with a gentle courtesy of manner which had an old time flavor to it and was irresistibly winning. No one could meet him, even casually, without being impressed by it and by the obvious fact that it was something different from the affability of a merely well-bred man. Those who knew him intimately recognized that it was but the outward reflection of the dignity, sweetness and purity that lay within. He was so wholly

superior to jealousy, prejudice and worldliness, and to all considerations of selfish policy, that he never seemed to suspect their possible existence in others. Trustful, sympathetic, true of heart, honest of purpose, intensely loyal in his friendships, generous and charitable in his relations with all men, he lived a brave, unselfish and useful life, and at its close met death with perfect fortitude and serenity.

The following list of notes and papers written by Dr. Merrill is probably far from complete but is believed to include nearly if not quite all the titles of his contribution to the literature of Ornithology and Mammalogy.

1. Notes on Texan Birds. *Bull. Nutt. Orn. Club*, Vol. I, Sept. 1876, pp. 88, 89.
2. A Humming Bird new to the Fauna of the United States. *Bull. Nutt. Orn. Club*, Vol. II, Jan. 1877, p. 26.
3. Notes on *Molothrus æneus* Wagl. *Bull. Nutt. Orn. Club*, Vol. II, Oct. 1877, pp. 85-87.
4. Occurrence of the Western Nonpareil and Berlandier's Wren at Fort Brown, Texas. (These records are given over J. A. Allen's signature in the form of a literal quotation from a letter written to him by Dr. Merrill.) *Bull. Nutt. Orn. Club*, Vol. II, Oct. 1877, pp. 109, 110.
5. Occurrence of *Myiarchus crinitus* var. *erythrocerus*, Sclat., at Fort Brown, Texas. *Bull. Nutt. Orn. Club*, Vol. III, April, 1878, pp. 99, 100.
6. The Buteo Albi-Caudalis. (Misprint for *albicaudatus*, the note relating to a specimen taken near Fort Brown, Texas). *Forest and Stream*, Vol. X, no. 23, July 11, 1878, p. 443.
7. Notes on the Ornithology of Southern Texas, being a List of Birds observed in the Vicinity of Fort Brown, Texas, from February, 1876, to June, 1878. *Proc. U. S. Nat. Mus.*, Vol. I, 1878, pp. 118-173.
8. Maynard's Birds of Florida [review]. *Bull. Nutt. Orn. Club*, Vol. IV, April, 1879, pp. 114, 115.
9. On the Habits of the Rocky Mountain Goat [being a literal transcript in full of a letter written by Dr. Merrill to Professor Baird]. *Proc. U. S. Nat. Mus.*, Vol. II, 1880, pp. 283, 284.
10. Notes on the Winter Plumage of *Leucosticte tephrocotis* Sw., and *L. tephrocotis* var. *littoralis* Bd. *Bull. Nutt. Orn. Club*, Vol. V, April, 1880, pp. 75-77.
11. Nesting Habits of the Canada Goose (*Bernicla canadensis*). *Bull. Nutt. Orn. Club*, Vol. VIII, April 1883, pp. 124, 125.
12. Republication in 'The Auk' of Descriptions of New North American Birds — A Suggestion. *Auk*, Vol. II, Oct. 1885, p. 389.



very faithfully yours,
Charles Aldrich.

13. Notes on the Birds of Fort Klamath, Oregon. With Remarks on certain species by William Brewster. *Auk*, Vol. V, April, July and Oct. 1888, pp. 139-146, 251-262, 357-366.
 14. A Silver Tip Family [of Grizzly Bears]. The Book of the Boone and Crockett Club, New York, 1897, p. 225.
 15. Notes on the Birds of Fort Sherman, Idaho. *Auk*, Vol. XIV, Oct. 1897, pp. 347-357; Vol. XV, Jan. 1898, pp. 14-22.
 16. In Memoriam: Charles Emil Bendire. *Auk*, Vol. XV, Jan. 1898, pp. 1-6.
 17. Spotted Sandpiper removing its Young. *Auk*, Vol. XV, Jan. 1898, p. 52.
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IN MEMORIAM: CHARLES ALDRICH.

BORN OCTOBER 2, 1828.—DIED MARCH 8, 1908.

BY RUTHVEN DEANE.

With Portrait (Plate VIII).

OF THE twenty-five Founders of the American Ornithologists' Union, we have lost nine by death, the last of whom, and the subject of this sketch, being the Hon. Charles Aldrich¹ of Boone, Iowa.

Mr. Aldrich was born October 2, 1828, in the town of Ellington, Chautauqua County, N. Y., and died March 8, 1908, and was therefore at the time of his death in his eightieth year. Although active in his daily occupations, he had been in delicate health for some years, when an attack of grip compelled him to give up his duties. While he rallied from time to time, and entertained hopes of soon returning to his work, complications set in and after an illness of seven weeks he passed away.

Mr. Aldrich was married at Knowlesville, N. Y., to Miss Matilda Olivia Williams on July 20, 1851. She was in full sympathy with all her husband's pursuits and was a member of the American Society

¹ I am greatly indebted for some of the facts and data contained in this sketch to the late Miss Mary R. Whitcomb of Des Moines, Iowa, who as assistant Curator of the Historical Department, was closely associated with Mr. Aldrich for twelve years.

for the Prevention of Cruelty to Animals and a lover of birds. She died at Boone, Iowa, September 18, 1892. Mr. Aldrich was married a second time, November 12, 1898, to Miss Thirza Louisa Briggs of Webster City, Iowa, a life long friend of his first wife. Mr. Aldrich is survived by the widow, a brother, Hiram Aldrich of Cedar Rapids, Ia., and two sisters, Mrs. Mary Kettell of Cambria, Wyoming, and Mrs. Jane Lee of Olean, N. Y.

Young Aldrich received his early education in the common schools, and at the age of sixteen entered the Jamestown Academy for one year, but his practical education began in June, 1846, when he entered the printing office of the 'Western Literary Messenger' in Buffalo, N. Y. Here he served an apprenticeship in the printer's art, as also in the villages of Attica and Warsaw, N. Y., and Warren, Penn. In June, 1850, he established the 'Cattaraugus Sachem,' a weekly newspaper, at Randolph, N. Y., which he conducted for one year. During the following five years he conducted the 'Olean Journal,' and then returned to the home farm in Little Valley, remaining there until his removal west in 1857.

Settling at Webster City, Iowa, at that time with about 200 inhabitants, and only 1500 in the County, he started under most primitive circumstances the 'Hamilton Freeman,' and as success favored his push and energy, he later was connected in the publication and editing of the 'Dubuque Times,' and 'Marshall County Times,' and was a frequent correspondent of the 'Chicago Inter-Ocean' and many other papers.

In addition to Mr. Aldrich's marked literary ability, he bore a prominent part in promoting the political and historical welfare of his favorite State. He had four times been chief clerk of the House of Representatives, from 1860 to 1870, and served the State in five of its legislatures, and in 1869 Iowa College conferred upon him the degree of A. M. He was a member of the State Historical Society of Iowa, the American Historical Association, Loyal Legion, Grand Army of the Republic, Pioneer Lawmakers' Association, and many other organizations.

In 1862 he entered the Union Army, and was made Adjutant of the Thirty-second Iowa Infantry, serving as such for eighteen months, when failing health caused him to tender his resignation and return to Iowa, receiving his honorable discharge January 28,

1864. In 1875 he was unofficially connected with the United States Geological Survey under Dr. F. V. Hayden, which was engaged that year in Colorado, Utah, Arizona, and New Mexico. While in the field he wrote frequent letters to the 'Chicago Inter-Ocean' which were widely read and often copied.

For many years Mr. Aldrich devoted his time, energy and money to the building up of the Historical Department of Iowa, and that this has become one of the monuments of the State is principally due to his untiring zeal and influence, and most of the valuable relics deposited there he has personally gathered and donated.

In early youth Mr. Aldrich acquired a taste for the collecting of autograph letters, portraits and other mementos of distinguished persons, and in this he was constantly assisted by his wife. The collection had grown to such magnitude that in 1884 he presented it to the State, on condition that it should be kept by itself in suitable cases in the State Library, where it has since been known as the 'Aldrich Collection,' and he was made curator and secretary of his treasures, constantly adding to them up to the time of his death.

This collection, comprising thousands of signed autograph letters, a large proportion being accompanied by portraits, represent our presidents, statesmen, officers of the Army and Navy, scientists, and men and women of title, literature and art from all over the world. Among the ornithologists represented is a letter of J. J. Audubon, dated New York, July 9, 1841, in which he speaks of "number 34" of his 'Birds of America,' which was then being published; and a letter of Alexander Wilson, dated Pittsburgh Penn., February 22, 1810, and addressed to Alexander Lawson, his engraver. Wilson describes his journey through Pennsylvania, is much gratified at his success in obtaining nineteen subscribers to his work in Pittsburgh, and writes that he has purchased a skiff which he has named the 'Ornithologist,' and of his intention to paddle down the Ohio River, over 500 miles, to Cincinnati.

Other letters are from Charles Lucian Bonaparte, Titian R. Peale, Ord, Baird, Kennicott, and Coues, besides such naturalists as Linnæus, Darwin, Owen, Wallace, Belt, Seeley, Waterton and many others. In addition to these relics the Historical Department comprises an extensive collection of books, pamphlets and files of early State newspapers. In the museum department is a collection

of birds, presented by the Smithsonian Institution, besides mammals, insects, and representatives of other branches of zoölogy.

The 'News-Republican' of Boone, Ia., says: "Curator Charles Aldrich was inspired to do this work by the knowledge that posterity would be greatly hampered and disappointed unless it were done. While the great mass of Iowans were content to deal with the present, taking no thought of the past or future, one man had the insight and the unselfish devotion to his race to inaugurate for them a place for a permanent record of their growth. Slowly and by unstinted energy Mr. Aldrich brought the State into a realizing sense of the need of the Historical Department, which now is rich in its fund of information and its precious relics of the past. None question now the need and value of Curator Aldrich's work. He has founded an institution which will live as long as literature and art, and for which generations yet unborn will rise and call him blessed."

In 1883 Mr. Aldrich travelled extensively in Europe, visiting England, Ireland, Germany, Italy and France, but he seems to have been particularly attracted with England, which country he visited twice later. While there he visited the great museums of London and South Kensington, as well as, in his own country, the New York American Museum of Natural History and the Philadelphia Academy of Sciences. These were all graphically described in his writings. While Mr. Aldrich had been a devoted lover of birds and all nature from early boyhood, he was not in the proper sense of the word an active ornithologist. His thoughts were, nevertheless, always in touch with the subject and in a quiet way he was frequently writing articles for the press and was deeply interested in bird protection.

An Iowa paper states: "In the death of Mr. Aldrich the birds and dumb animals lose one of the best and strongest friends they ever had. His versatile pen was ever ready to take up their battles and he did as much as any man in Iowa to create proper sentiments for the care and treatment of all animals and birds." In the early volumes of the 'American Naturalist' are short notes from his pen and a few of his observations are recorded in the 'Bulletin of the Nuttall Ornithological Club' and 'The Auk,' between 1878 and 1885. From 1897 to 1904 articles appeared over his signature in

the Des Moines, Boone, and other Iowa daily papers. Among these titles are, 'Bird Protection in England,' 'Wild Birds know their Friends,' 'The merciless war upon the Birds,' 'Hawks and Owls,' 'The Passenger Pigeon,' 'How Settlement affects the Birds, both upon wet and dry land,' and numerous other articles. Mr. Aldrich drafted and secured the passage of the Iowa law of 1870 which protects from wanton destruction the harmless and useful birds. Of this pioneer measure he was always very proud. It still remains in the code of Iowa, though slightly amended.

Mr. Aldrich was much interested in the Kendall Young Library of Webster City, Iowa, the town where he first settled. To this library he donated a fine collection of books, chiefly on subjects of natural history, and among them such standard works on ornithology as were published by Audubon, Wilson, Baird, Coues, Ridgway, Bendire, 'Bulletin of the Nuttall Ornithological Club' and the works of several prominent English authors.

Dr. Elliott Coues was a warm and personal friend of Mr. Aldrich; their mutual love for birds and historical research, was naturally the strong tie that brought them together. They were both interested in the Expedition of Lewis and Clark. It was Mr. Aldrich who first aroused public interest and secured a provision from the legislature of the State for the erection of a monument near Sioux City, to mark the grave of Sergeant Floyd, a member of the Lewis and Clark Expedition, who died there August 20, 1804, and was the first American soldier buried in Iowa soil. He was much interested in Dr. Coues's reprint of Lewis and Clark, and rendered him assistance in its preparation, in recognition of which grateful acknowledgment was expressed in the preface. It was at the request of Dr. Coues that an invitation was sent to Mr. Aldrich, dated August 1, 1883, inviting him to attend a Convention in New York of American Ornithologists, for the purpose of founding an Ornithologists' Union.

A close friend to Mr. Aldrich writes in the 'Annals of Iowa': "One of the most conspicuous traits of Mr. Aldrich's many sided character was his intense love of old time friends, and those friends, who are legion, included birds and dumb creatures, no less than men. His successful advocacy of a law for the protection of song birds, his delight in the songs and domestic debates and difficulties

of the wrens that nested in the south front of his house at Boone, bespoke a nature keenly sensitive to the beauties and finest melodies of Nature."

Thus we have lost from our ranks a man whose long and unchecked life was made up of those finer instincts which peculiarly fitted him for a journalist, soldier, legislator, historian, and lover of birds.

RICHARD BOWDLER SHARPE.

BY J. A. ALLEN.

*With Portrait*¹ (Plate IX).

RICHARD BOWDLER SHARPE, an Honorary Fellow of the American Ornithologists' Union, died at his home in Chiswick, London, on Christmas Day, 1909, at the age of 62 years, after a brief illness from pneumonia.

Dr. Sharpe was born in London, November 22, 1847, the eldest son of Thomas Bowdler Sharpe, a well-known publisher in London, and grandson of the Rev. Lancelot Sharpe, rector of All Hallows Staining, London, and for many years headmaster of St. Saviour's Grammar School in Southark. At the age of six he was placed in the care of an aunt, who kept a preparatory school at Brighton, where he passed three years. At nine he was transferred to a grammar school in Peterborough, of which his cousin, the Rev. James Wallace, was master. Here he "gained a King's Scholarship, which not only guaranteed his education but carried with it a small amount of money." Later his cousin accepted the head mastership of a grammar school at Loughborough, and young Sharpe followed him to his new post where he continued to win the chief prizes of the school. At the age of sixteen, at the instance of his father, he went to London and took a clerkship in the establishment of W. H. Smith & Son, and two years later entered the employment of B. Quaritch, the eminent London publisher and bookseller. At the age of nineteen he was appointed librarian to the Zoölogical Society, which office he held for five years, when,

¹ Reproduced, with permission, from 'British Birds,' Vol. III, February, 1910.



H. S. S.

Portrait by
H. S. S.

W. B. D. D. D.

Born Nov. 22nd 1847. Died Dec. 25th 1909.

in 1872, he accepted the post of Senior Assistant in the Department of Zoölogy at the British Museum, made vacant by the death of that eminent ornithologist, George Robert Gray, which position he held till his decease, having been promoted in November, 1895, to be Assistant-Keeper in charge of the Vertebrate section of the Zoölogical Department.

Sharpe early gave evidence of a strong love of natural history, especially of birds and insects, and his ornithological work had begun in earnest at the time he accepted his first clerkship in London, at which time, we are told,¹ "he was devoting every moment of his spare time to the study of birds, with the determination to earn his living as an ornithologist." His first published work was his 'Monograph of the Alcedinidæ, or Family of Kingfishers,' begun when he was seventeen years of age and finished when he was twenty-two, a quarto volume of nearly 400 pages, with 121 colored plates. On the completion of this great work he began in 1871, in coöperation with Mr. H. E. Dresser, 'A History of the Birds of Europe' (4to, with colored plates), but the following year he was obliged to abandon this undertaking, completed later so successfully by his colleague, to take up his official duties as head of the Ornithological Department of the British Museum.

Here his ability was so quickly appreciated that he was soon entrusted with the preparation of the first volume of the 'British Museum Catalogue of Birds,' published in 1874, which gigantic work (8vo, 27 vols., 1874-1898) employed the chief part of his time and energies, apart from the official routine of his curatorship, for a quarter of a century, to be followed immediately by his 'Handlist of the Genera and Species of Birds' (8vo, 5 vols., 1899-1909.)² Of the 'Catalogue' he prepared personally volumes I-IV, VI, VII, X, XII, XIII, XXIII, and XXIV, and parts of volumes XVII and

¹ This notice is based on the biographical sketch of Dr. Sharpe published in 'British Birds' for February, 1910 (Vol. III, pages 273-288, with portrait), by Mr. C. E. Fagan, and on that of Mr. W. R. Ogilvie-Grant in the 'Bulletin' of the British Ornithologists' Club (Vol. XXV, Feb. 1910, pp. 43-49, also with portrait and a bibliography by Mr. C. Chubb, pp. 49-70), from which nearly all of the facts here given relating to his personal history are derived, chiefly from Mr. Fagan's paper, this notice having been written before Mr. Grant's was received.

² For recent reviews of the 'Handlist' by the present writer see this journal, Vol. XXVII, Jan. 1910, pp. 93-95, and 'Science,' N. S., Vol. XXXI, No. 790, pp. 265-267, February 18, 1910.

XXVI, comprising nearly one half of the 11,500 species contained in the entire work.

These two undertakings, the 'Catalogue' and the 'Hand-list,' published during the thirty-seven years of his official life as Curator of the British Museum Department of Birds, are only a part, although a considerable part, of his ornithological output during this long period; for he found time to complete the unfinished works of several of his ornithological colleagues, and to write a large number of special publications on birds which alone might be considered a remarkable series to be produced by a single author. The first include Gould's 'Birds of New Guinea,' of which two-thirds was published after Gould's death; also five parts of Gould's 'Monograph of the Trochilidæ,' to say nothing of Sharpe's contributions to some of Gould's other works. He also completed and edited Seebohm's 'Eggs of British Birds,' and his 'Monograph of the Turdidæ,' and after Osbert Salvin's death assisted Godman in the completion of the 'Aves' of the 'Biologia Centrali-Americana.'

His own separate works include a 'Monograph of the Birds of Paradise and Bower-birds' (folio, 1891-1898); a 'Monograph of the Hirundinidæ' (4to, 1885-1894, with C. W. Wyatt); a new edition of Layard's 'History of the Birds of South Africa' (8vo, 1875-1884); 'An Analytical Index to the Works of the late John Gould,' with a biographical memoir (4to, 1893); 'A Handbook to the Birds of Great Britain' (4 vols., 8vo, 1894-1897); 'A Review of Recent Attempts to Classify Birds' (1891); Part III of the 'Catalogue of the Osteological Specimens in the Museum of the Royal College of Surgeons (Aves, 8vo, 1891); 'History of the Bird Collection in the British Museum' (1906).

He also wrote the reports on the birds for the 'Zoölogy' of various Government and private Exploring Expeditions, as the Voyage of the 'Erebus' and 'Terror' (Birds, 4to, 1875); the Voyage of the 'Alert' (1884); the Second Yarkand Mission (1891); Oates's 'Matabele Land and Victoria Falls' (1881 and 1889); and Jameson's 'Story of the Rear Column of the Emin Pasha Relief Expedition' (1890).

His ornithological papers in scientific journals, beginning in 1866, number nearly four hundred, and some of them are of con-

siderable length, while for fifteen years he was the recorder for the Class Aves in the 'Zoölogical Record,' beginning with the year 1870 and ending with 1908, with two considerable periods of intermission when the post was filled by others.

In addition to this long list of technical works and papers, he also found time to write various popular works on birds, as the bird volume of Cassell's 'New Natural History' (Aves, 1882), 'Birds in Nature' (4to, 1888), the bird volume of the 'Concise Knowledge Library' (8vo, 1897), 'Sketch-book of British Birds' (8vo, 1898), 'Wonders of the Bird World' (8vo, 1898), and a two-volume edition of Gilbert White's 'Natural History and Antiquities of Selborne' (1900), besides lesser contributions of a similar character.

His remarkable success in building up the National collection of birds, from 35,000 in 1872 to about 500,000 in 1909, despite the weeding out of many duplicates, is well known. Many of the important collections that were transferred to the British Museum by their donors were avowedly contributed to this institution in consequence of the presence of Dr. Sharpe at the head of the Ornithological Department, as notably the great Hume and Tweedale collections, and others. Many others were acquired by purchase through the influence of his enthusiastic and persistent appeals to the Trustees of the Museum.

His curatorial duties naturally absorbed a large amount of his time and limited his opportunities for research and literary work, so that, it is currently stated, a large part of the 'Hand-list' was written at his home after a day of toil at the Museum.¹

Dr. Sharpe's scientific interests were rather closely restricted to the class of birds, but here he was easily a master, and his influence upon the progress of ornithology during his lifetime would be hard to measure, and in certain ways was undeniably preëminent. In his knowledge of the external characters of birds, and his ability to remember and recognize species offhand, he was probably without a peer; but he was not a deep student of the anatomy

¹ Since the above was written the January, 1910, issue of 'The Emu' has been received, containing a letter from Dr. Sharpe to one of the editors, in which Dr. Sharpe says: "I seldom have a moment to myself, and have to do most of my work at home, and scarcely an evening that I do not work from 8 P. M. till 2 and 3 A. M. I have finished Vol. V of the 'Handlist' at last, thank God!"

of birds, and his list of titles reveals few papers bearing upon their internal structure. His 'Review of Recent Attempts to Classify Birds,' presented at the Second Ornithological Congress at Budapest in 1891, was based almost wholly on second-hand knowledge of their internal anatomy, and hence his system of classification then propounded was necessarily eclectic and unchecked by personal knowledge of the relative weight and bearing of alleged anatomical characters. Although adopted by him in the 'Handlist,' it has not escaped much unfavorable criticism.

Dr. Sharpe was a man of warm social instincts, which led to his taking an active interest in several literary clubs of London, and made him the moving spirit in the founding of the British Ornithologists' Club in 1902, of which he became the editor of its 'Bulletin.' He was a constant attendant at its meetings, and was present, in apparently his usual health and good spirits, at the last meeting of the Club preceding his death, held December 16, 1909. In returning to his home he was seized with a chill, "and next day took to his bed, pneumonia and other complications supervened, and the end came early on the morning of the 25th."

Although of robust constitution, he suffered in his later years from impaired health, due to excessive application for so long a period to official and literary work. He was a prominent participant in the meetings of the International Ornithological Congress, being Chairman of Section A (Zoölogy and Comparative Anatomy) at the Second Congress (Budapest, 1891), and President of the Fourth Congress, held in London, in 1905. He was, of course, elected to Honorary Membership in all of the principal ornithological societies of the world, and was one of the first ornithologists thus honored by the American Ornithologists' Union, at its first meeting in 1883.

"Sharpe was a man of remarkably wide and varied sympathies and interests. He was above all intensely human, and enjoyed life to the full. His keen sense of humour, his overflowing good nature, his love of pure fun, almost boyish to the last, his buoyant spirits, all combined to give him an irrepressible optimism that must have often stood him in good stead in the stern battle of life in which he had to take his full share, fighting against heavy odds

the greater part of his life."¹ He was, as has been said by one of his compeers, a self-made man in the best sense of the word. His monument is the Department of Birds in the British Museum, the British Museum 'Catalogue of Birds,' and his 'Handlist of the Genera and Species of Birds.'

Dr. Sharpe was married in 1867, and leaves, besides his widow, a family of ten daughters.

Dr. Sharpe's death is a great loss to science, and an almost irreparable one to the British Museum Department of Birds, which has acquired its preëminent rank among the great ornithological collections of the world mainly through his efforts; while his long series of contributions to the literature of ornithology will be his enduring memorial to the end of time.

NOTES ON SOME OF THE RARER BIRDS OF WASHTENAW COUNTY, MICHIGAN.²

BY N. A. WOOD AND A. D. TINKER.

THE writers have found in their work in Washtenaw County that the present status of certain species of birds that inhabit the region is not known or is different from what has been recorded. Our object in this paper is to give a summary of the occurrence of these forms at the present time, as it appears from our notes and the specimens in the University of Michigan Museum.

A. B. Covert's ³ list of the birds of Washtenaw County, and A. J. Cook's ⁴ list of Michigan birds (Washtenaw County records from Dr. J. B. Steere) give the only general summaries of the occurrence of the species in the County, and will be frequently referred to. The miscellaneous notes on the subject that have appeared in the literature will be cited in the text.

¹ Fagan, *l. c.*, p. 283.

² From the University of Michigan Museum.

³ Covert, A. B. *Birds, in History of Washtenaw County*, Chicago, 1881.

⁴ Cook, A. J. *Birds of Michigan*. Bull. 94, Mich. Agri. Exp. Sta., 1893.

Sterna hirundo. WILSON'S TERN.—In Cook's list of Michigan birds, this species is not given from Ann Arbor, but A. B. Covert in 1881 recorded the species as "A common migrant." Since that time the records of its occurrence here have been very meager, only three previous to 1905. The only specimen from Ann Arbor in the Museum was taken May 16, 1891. From 1905 to the present time it has been seen every year, migrating up the Huron River. Our earliest spring record is that of April 12, 1908, when 13 were observed at Fourmile Lake. The latest spring record is that of May 23, 1903, when seven were recorded at Portage Lake by Wood. It is possible that the species may breed around some of the lakes of the County, as one was noted at Portage Lake on June 27, 1909, but of this nothing positive has been ascertained. Our earliest fall record is September 1, 1908.

Hydrochelidon nigra surinamensis. BLACK TERN.—Covert apparently found the species quite abundant for he gives it in his list as "Migrant, quite common." Since that time, however, we can find but few records for this vicinity. Wood took a fine specimen near Saline, Washtenaw Co., on May 19, 1892, and May 21, 1903, he recorded them at Portage Lake. May 19, 1907, one was observed migrating up the Huron River toward Portage and Zukey Lakes. June 27, 1909, Mr. Wood noted a pair at Portage Lake. They have occasionally been seen during the summer about Bass Lake, just to the northeast of Portage, and may possibly breed in the extensive marshes about that lake.

Mareca americana. BALDPATE.—In 1881, Covert speaks of the species as a "Common migrant." However for the past thirty years there have been but very few records for the County. In the Museum collection there is a specimen labelled "Ann Arbor, spring 1886, M. M. Bigelow." Two fine specimens—a male and female—were taken by Edward Campbell at Pleasant Lake on April 17, 1909.

Spatula clypeata. SHOVELLER DUCK.—Covert gives the species in his list as "Summer resident." Dr. J. B. Steere in Cook's list says "A questionable summer resident." Since 1881 we have had very few records and the species is certainly rare here at the present time. It has not been known to breed within the County during the past fifteen years. It is questionable whether the species should

ever have been classed as a summer resident. Our earliest spring record is April 8 (1888) and the latest April 20 (1899). Our only fall record is the single bird noted by Mr. Wood, on a small pond southeast of Ann Arbor, October 1, 1907. In 1908, the species was recorded at Fourmile Lake on April 12 and in 1909 on March 27.

Aix sponsa. WOOD DUCK.—Covert speaks of the species as a "Summer resident, not rare." Subsequent records show that this beautiful species, although not as common of late, has still been able to withstand the persecution of gunners to such an extent that a few pairs still breed in suitable localities along the Huron River. Our earliest spring record is February 17 (1890). On April 15, 1909, a fine male was caught in a trap set for muskrats, and on April 25 a female with a brood of young was seen on the Huron River not far from Ann Arbor.

Marila collaris. RING-NECKED DUCK.—In the 'Birds of Michigan' Cook gives the species as a "Rather common migrant" but of late years very little mention has been made of it in the literature. In Michigan, as well as in Ohio, it seems to be a rather rare migrant. Covert speaks of it as a "Common migrant in the County," but we have only one authentic record for this vicinity, and that is an adult male, taken on the Huron River near Geddes, March 20, 1909, by F. Novy. In the Museum are three specimens labelled, "S. E. Mich.—coll. Dr. Sager, Nat. History Survey of 1837-8," but it is not certain whether these were taken here or in adjacent counties.

Tympanuchus americanus. PINNATED GROUSE.—This species was formerly common near Ann Arbor but during the years 1880-1890 became nearly extinct within the County. Of late, however, owing to protective laws, it is on the increase, and may become fairly abundant again. On April 4, 1909, the writers noted the species at Fourmile Lake, where conditions are very favorable for its continued increase.

Asio flammeus. SHORT-EARED OWL.—Covert gives the species as "A very abundant resident," and Steere says, "Not rare at Ann Arbor" (Cook's list). We have several records of the occurrence of the species between December 1 and April, but only one for the summer months. On June 24, 1907, a brood of four young just able to fly was found in a big marsh in the old "drainage channel"

five miles southwest of Ann Arbor. Three of these were secured and one is now preserved in the Museum. April 4, 1909, a small flock of five was observed in an extensive marsh at the north end of Fourmile Lake in this County. It is quite possible that the species is a regular breeder, but we lack the necessary data to make this certain.

Archibuteo lagopus sancti-johannis. AMERICAN ROUGH-LEGGED HAWK.—Covert apparently found the species rather common in 1881, as he speaks of it in his list as "Very common in the fall." Our present knowledge of the species, however, would hardly permit us to make such a statement, as upon investigation we have been able to find but few records for the County. January 22, 1888, Wood caught one in a trap; on March 20, 1899, a fine specimen was taken near Ann Arbor in a trap; one was shot on March 15, 1897, and on October 30, 1909, W. Ransome secured a beautiful specimen just north of the city. Judging from the apparent scarcity of records it can safely be stated that the species is a rare and irregular visitant in the County, being most often noted in the winter and early spring months.

Falco columbarius. PIGEON HAWK.—A rare migrant at all times within the County; but few records have been secured. One was taken near Ann Arbor on March 1, 1896, and a fine male on October 19, 1890. On November 5, 1900, a beautiful female was taken about four miles south of Ann Arbor and presented to the Museum. Covert considered the species to be a rare migrant in 1881, and recent observations confirm his opinion.

Centurus carolinus. RED-BELLIED WOODPECKER.—Covert gives the species as "Very common, breeds in heavy timber." Since the above was written a large portion of our heavy timber has been removed, and, as our records show, the species is in consequence fast becoming a rare one in the County. But nine records have been secured in the last twenty years, and these are as follows: June 1, 1896, Wood noted a pair in heavy woodland west of Ann Arbor; May 1, 1896, a pair was noted northeast of the city. On November 28, 1902, E. H. Frothingham secured a male. May 6, 1905, Wood took a male just east of Ann Arbor, April 1, 1906, it was noted about two miles west of town. March 31, 1907, O. McCreary found one five miles west of Ann Arbor. April 11, 1909, one was noted in heavy timber along the Huron River below Geddes Station.

Nuttalornis borealis. OLIVE-SIDED FLYCATCHER.—This species is not mentioned from Ann Arbor in Cook's list, but there is, in the Museum collection, a pair that was taken here May 28, 1896, by A. B. Covert. Other records are May 1, 1903 (Wood), and June 6, 1907, May 18 and 29, 1908 (Tinker). Our only fall record is that of a single bird noted in one of the cemeteries of the city, on October 7, 1908. The species is far from common during either migration, and may be considered rare at all times.

Empidonax virescens. GREEN-CRESTED FLYCATCHER.—In 1881 Covert considered the species to be a rare summer resident. At present it cannot be looked upon as anything but a rare migrant for this vicinity, our records not warranting us in classing it as a summer resident. The only records that we have are, one taken on May 27, 1869, by W. Harrington and one secured on May 15, 1896, by D. C. Worcester.

Spinus pinus. PINE SISKIN.—In Cook's 'Birds of Michigan,' Steere gives the Pine Siskin as "Rare at Ann Arbor," while A. B. Covert, in 1881, says of it, "Winter visitant from the north." Since 1893 it seems to have become more common during both migrations, as it was fairly abundant in the spring of 1907, from May 17 to 24, while in the spring of 1908 it was recorded on May 9 and 10. In the fall of 1908 Pine Siskins first made their appearance at Ann Arbor on September 26, and continued abundant up to November 8, disappearing on the 15th: during the latter part of September and, October 1, they were frequently observed feeding on the aphids which infested the shade trees of the city. On January 13, 1909, three were observed within the city, and during the spring they were noted about the city from May 6 to 23. They were most often seen in small bands of a dozen or more individuals about coniferous trees.

Passerculus sandwichensis savanna. SAVANNAH SPARROW.—Covert gives the species as "A common migrant" in his list of 1881, but since that time our records show that it is far from common here, especially in the fall. A female was taken at Ann Arbor on May 12, 1905, and on April 28, 1907, a male was taken and a number of others noted, south of town. This year—1909—it was more common, an adult male being secured on April 14 and other specimens on May 4 and 19. Up to date we have no fall records.

***Ammodramus henslowi*.** HENSLOW'S SPARROW.—Covert gives this sparrow as "A very rare summer visitor." There is a specimen in the Museum labelled "Ann Arbor, May 26, 1894, ad. female, collected by A. B. Covert." Since that time the species was not recorded from this locality until April 18, 1909, when a fine adult male was found dead at Ypsilanti. On May 1, 1909, Mr. Wood was fortunate enough to secure a female just east of Ann Arbor, and on May 31, 1909, a singing male was found in a partially drained marsh west of Ann Arbor. Diligent search was made for a nest of the latter but none could be found, although the bird gave every evidence of having one in the vicinity, and seemed loath to leave the locality. More extended field work may show the species to be more common than seems to be the case at present.

***Cardinalis cardinalis*.** CARDINAL.—In Cook's list (1893), we find the statement by Dr. Steere "never seen at Ann Arbor," and it is not given in Covert's list of 1881. The first record that we have of its occurrence here is on June 14, 1884. On May 24, 1903, a nest with one egg was found near Ann Arbor, and since that year the species has gradually gained a foothold, until at the present time it may be said to be a permanent resident. The Cardinal is one of those species that has apparently gradually extended its range from the south, and will in the future become more common where it has heretofore only been known as an accidental visitant. Other breeding records were secured in May, 1905, and on May 8, 1909.

***Stelgidopteryx serripennis*.** ROUGH-WINGED SWALLOW.—Covert does not mention this swallow in his list, but since that time the species seems to have been gaining a foothold in the County, although still rare as a migrant and summer resident. Our earliest spring record is that of April 23, 1906. On May 13, 1905, Wood found a pair nesting with a colony of Bank Swallows and secured the male. In 1906, it was first recorded on April 23, and in May was found breeding alone in a small gravel-pit near Ann Arbor. On May 10, 1907, a pair was found nesting in the same pit as above. During the spring migration of 1908 the species was fairly abundant from April 29 to May 15. On May 1, 1909, Wood noted a flock of twelve down the Huron River, and from that date to the middle of May it was fairly abundant, apparently being held

here on the migration by the severe weather. May 28, 1909, a pair was found nesting in company with Bank Swallows.

Lanivireo solitarius. BLUE-HEADED VIREO.—Although in Cook's list (1893) the species is not mentioned from Ann Arbor, Covert (1881) speaks of it as "A not common migrant," and since that time but few records have been secured. Our earliest spring record is May 2, 1905. On May 10, 1901, Wood and J. Ricks each secured specimens. The species was again noted in 1903, on May 10 and 30, while in 1906 three were recorded on May 4, and on September 26 of the same year Wood secured a specimen at Portage Lake. It was recorded on May 9 and 14, 1907, and May 6 and 7, 1909. On the latter date a fine male and female were noted. Although occasionally observed in the fall, as on October 7, 1908, and September 26 and October 17, 1909, most of our records are for the spring migration and are confined to the first two weeks of May. From the foregoing it can readily be seen that the species apparently has not increased to any extent since 1881, and, although a more or less regular migrant through here, is far from common at any time.

Dendroica tigrina. CAPE MAY WARBLER.—Our earliest record of the taking of the species within the County is the female in the Museum collection, taken in the fall of 1869 by W. Harrington. It seems to be somewhat irregular in its occurrence here, for while in some years it is fairly common, in others it is apparently entirely absent. In 1907 the Cape May was far from common both in the spring and fall, but in 1908 several were seen and taken between May 15 and 18. In 1909, the species first made its appearance on May 6, and remained until May 23. In the spring, males seem to be the more numerous, while in the fall females and immature birds outnumber the adult males three to one. During the fall of 1908, the species was remarkably abundant, first appearing on September 9 and remaining until September 27, the majority being either females or immature birds.

Dendroica cerulea. CERULEAN WARBLER.—Covert gave this warbler, in 1881, as "A very common summer resident, breeds; nesting in the tops of tall trees." Since that date we have found them very irregular and local in their occurrence; some years none at all being seen. In 1903, Wood found several nests, but the next

year he was not able to locate one, although the same territory was thoroughly searched. In 1908, the species appeared to have returned in some numbers, as it was recorded on May 16, and on May 24 a number were found in full song, in a heavy swamp about seven miles west of Ann Arbor. The spring of 1909 found the species present, but only in limited numbers. On July 20, 1909, F. Novy took an immature bird near here, a few others being noted at the same time. In all probability the decrease in the number observed may be attributed to the destruction of the heavier timber which apparently forms a prominent factor in the environmental conditions preferred by this warbler.

***Dendroica castanea*.** BAY-BREASTED WARBLER.—Covert considered the Bay-breasted Warbler as not very common, but in recent years it seems to be fairly common during the migrations, especially in the fall. Our earliest spring record is that of May 3, 1905, and one was taken as late as June 6 (1908). In the fall it has been taken here as early as September 5 (1896) and as late as September 30 (1905). In 1907, the species was quite common, first making its appearance on May 13, and remaining until June 6. As a general thing the males appear to be more abundant in the spring than the females, while in the fall the immature birds form the bulk of the migrants. In 1908, the Bay-breasted was quite common during both spring and fall, but especially in the fall, when they were the most abundant species present from September 27 to October 1. In the spring and fall of 1909, the species was not as common as in the previous year.

***Dendroica striata*.** BLACK-POLL WARBLER.—Covert says of the Black-poll, "The last of our warblers to arrive in spring, when it comes in immense numbers." We have never found it common at any time, and it is only occasionally that the species is present in any numbers. In the spring of 1907, Black-polls came May 16, and were unusually common, remaining until June 6. Our earliest spring record is May 13 (1904) and the latest June 6 (1907). The spring of 1908 found the species fairly common, especially on May 18 when a number were observed, and they were with us from May 16 to 25. In the fall of that year they were even more abundant, being noted from September 9 to October 7, and in considerable numbers on September 27.

***Dendroica dominica albilora*.** SYCAMORE WARBLER.—In 1881,

Covert wrote of this species as follows: "I cannot learn that this bird has ever been shot in the County, still I have taken it in other portions of the State and I think that it will yet be detected here." This prophecy eventually came true for on April 22, 1906, a fine male in full song was noted in a grove of sycamores along the Huron River, about half way between Ann Arbor and Ypsilanti (Tinker). On April 25, 1906, Wood took a fine male in the same locality, and noted the species again on April 26 and 29. The species in all probability bred here at that time for it was still present on May 6, but we were unable to locate nests. Wood has a specimen taken near Ypsilanti on May 17, 1893, by Van Fossen. Although diligent search was made for the species in 1907, nothing was seen of it, but in 1908 a male in full song was noted in the same locality as the others noted above, on April 26, and again, on April 29, Wood noted two here, securing one for the Museum. The species was noted in song on June 21, 1908, but no breeding records were obtained.

Dendroica vigorsi. PINE WARBLER.—Covert says of this species "Rare summer resident in this County." There is no question as to the rarity of the Pine Warbler here at the present time, but we doubt if it ever bred within the County, as we have not been able to find any record to support Covert's statement. Our records for the occurrence of the species are as follows: On April 28, 1898, Wood secured a fine male — now mounted in his collection. For 1907 there are several records: Wood first detected the presence of the species on April 26, when he secured an adult male; on April 27 he took another specimen, and on May 2 a male and female were noted feeding in the coniferous trees in one of the cemeteries of the city. The male of the last named pair was in full song at the time.

In 1908 the species was first recorded on April 23, when three were noted, but it was also observed on April 24. More were noted in the spring of 1909 than in any previous season, the species first being observed on May 1 and afterwards on May 4 and 11. Nearly all of the records secured in the spring have been of adult males in full song. The apparent scarcity of the Pine Warbler here is no doubt due to the lack of a suitable environment, as the County is almost devoid of the natural coniferous growths preferred by this species.

Dendroica discolor. PRAIRIE WARBLER.—In 1881, Covert found the species a rare one in the County, as it is at the present time. On May 10, 1901, a beautiful female was secured two miles east of Ann Arbor, at the edge of a large brush pile in an apple orchard. On May 9, 1903, a fine male was taken at the edge of a tamarack swamp, and on May 2, 1905, two males were secured in hazel brush on the banks of the Huron River below Ann Arbor. The species was recorded but once in 1906—May 4—but in 1907 it appeared to be more numerous, although far from common. In that year it was first noted on May 12, when one was found in a large apple orchard east of town and another in a brushy lot in the same general locality, and again on May 13 (adult male), 14 (female) and 15 (female). The only record for 1908 was that of one specimen noted in the vicinity of Ypsilanti on May 16. In the season of 1909 four records for the species in this vicinity were secured; the first on May 11, and the others on May 12, 16, and 18. On all four of these occasions the birds were found in full song.

Seiurus motacilla. LOUISIANA WATER-THRUSH.—Covert apparently found this Water-thrush rather common, as he wrote in 1881 as follows: "A very common summer resident, breeding in swampy timberlands." Our experience with the species certainly does not bear out this statement, as we have found it only as a rare summer resident and migrant. On May 8, 1896, the species was found breeding near South Lyon, by Covert and Wood, and this seems to be the only breeding record for the County. On June 16, 1906, an adult male was found dead on the college campus. The testes in this individual were well developed showing that it was possibly a breeding bird. Of late years it has been recorded nearly every spring, as May 12, 1904, May 10, 1905, May 6, 1907, and April 26, 1908. But up to 1909 these are the only records we have, with the exception of the single bird taken by Wood on August 15, 1905. In 1909, the species seemed to be more common, as it was frequently noted in full song from April 28 to May 16.

Oporonis agilis. CONNECTICUT WARBLER.—In regard to the presence of this species in the County, in 1881, Covert says: "I have secured one specimen in this County—May 17, 1880." We have always found it a rare spring migrant and a very rare fall migrant here, in fact our only fall record seems to be that of an

adult male taken in the vicinity of Ann Arbor on September 9, 1896. In 1906, the species was noted but once, on May 2. In 1907 it was first observed on May 18 and 19, but on May 30 two specimens were taken, and on May 24, 31, June 2 and 9 single birds were seen. In 1908, it was recorded but once, May 17, and in 1909 not at all. From the foregoing it may be seen that the species is apparently somewhat more common than when Covert collected in this vicinity, but that it is still far from abundant.

Oporonis philadelphia. MOURNING WARBLER.—For the past five years we have found the Mourning Warbler fairly common during the spring migrations. In 1881 Covert looked upon the Mourning Warbler as rare in this County, as shown by the following statement: "This handsome bird is rare in the county, I have records of but three specimens." Several have been taken between 1902 and 1909, but in the season of 1907 they seemed to be particularly abundant. On May 28, 1907, four were noted in the vicinity of Ann Arbor, two males being secured at that time. On May 31, 1907, Wood took two near the Huron River below Ann Arbor. In 1908 and 1909, only single records were secured — May 24 in the former year and May 25 in the latter.

Icteria virens. YELLOW-BREASTED CHAT.—In Cook's list (1893) Steere is quoted as stating that the species had not at that time been observed at Ann Arbor, and Covert does not mention it in his list. On May 20, 1896, Covert in company with Dr. R. Wolcott and P. A. Taverner, found the species in song in an extensive swamp southwest of Ann Arbor. Several were seen on this date and five secured. In 1903, Mr. Covert wrote of the presence of the species in Washtenaw County as follows: "Dr. R. H. Wolcott and the writer found them very common in May, 1893, at various places and secured a fine series of specimens; these were taken about four miles south of Ann Arbor, Washtenaw Co. Again in the same locality in company with Prof. Dean C. Worcester on May 4th, 1895, I secured a pair (male and female) which were nesting." (Bull. Mich. Orn. Club, 1903, p. 60.)

From 1896 to 1906 nothing seems to have been recorded regarding the species, but on May 16, 1906, an adult male was taken by Wood in the same general locality as the above. On June 28, 1909, the species was heard singing by Wood in the same swamp, and

was again noted on July 3, 1909, by F. Novy. It is quite possible that the Chat bred in this vicinity in the summer of 1909, but of this we have no definite evidence.

Wilsonia pusilla. WILSON'S WARBLER.—Covert says of this species, "Very common during spring and fall, some remain with us all summer." Our present records certainly do not confirm this statement, and we very much doubt if the species was ever a summer resident here. At the present time it is a rare migrant both in spring and fall, but is much more so in the fall. Our earliest spring record is May 11 (1904). In 1903, the species was recorded on May 22, when J. J. Ricks secured a fine male at Portage Lake. On May 11, 1904, Wood secured a male in a swamp east of Ann Arbor, and noted another in the same locality on May 12. In 1906, but one record was secured — May 17.

In 1907, the species was unusually abundant. It first made its appearance on May 28, and continued with us in varying numbers up to June 9, being noted almost daily between these dates. In 1908, it was about normally abundant, being first recorded on May 15 and remaining until the 19th. In 1909, the species was first noted on May 18, and on the 19th Wood found it quite abundant along the river: it was observed in limited numbers until May 23.

Our only fall records are September 8, 1907, and October 7, 1908. From the foregoing, it can readily be seen that the species is much less common in the fall than during the spring migration. Moreover it is very local in its occurrence here; never being found far from water.

Wilsonia canadensis. CANADIAN WARBLER.—Of this warbler Covert says, "A very common migrant, frequently remaining all summer." We have never found the Canadian Warbler in summer, although it has been observed late in May and occasionally is rather common at that time. However, the species is not generally distributed over the County during the migrations, but rather local, so we may have overlooked it.

Our earliest spring record is that of May 1 (1888) and our latest June 2 (1907). In the spring of 1907, the species was with us from May 13 to June 2, and was unusually abundant during the entire period. In the spring of 1908, it was first noted on May 11, and continued with us in limited numbers up to May 18. In 1909, it

was present from May 6 to 27, but was not at all common at any time during the migration. Our fall records are very limited; the only ones which we have been able to find are those of September 3, 1909, and August 23, 1908.

Thryothorus ludovicianus. CAROLINA WREN.—Covert considered the Carolina Wren in this vicinity as a very rare straggler from the south, and knew of but one record for the County—a female taken in a store at Ann Arbor, December 14, 1890. As far as we have been able to ascertain no further records were secured until June 6, 1909, when a male in full song was noted, and on June 20 a nest with five young was found near Ann Arbor (Auk, XXVI, p. 434). In Cook's list the species is recorded from Lenawee County (A. H. Boies), and Jerome Trombley is quoted as finding a nest in Monroe County in 1892, so that it is not at all surprising that the species should extend its range a little further north into this county. Whether or not it will eventually establish itself here as a permanent resident remains to be seen.

Bæolophus bicolor. TUFTED TITMOUSE.—In Cook's list, the Tufted Titmouse is given as a regular winter resident at Ann Arbor (on the authority of Steere), but Covert does not mention it in his list of 1881. Although it may have been a regular winter resident at the time when Steere wrote the above, it certainly is not so at the present time. During the fall and winter of 1903, the species appeared to be fairly common, as J. J. Ricks noted a flock at Portage Lake, and it has been noted several times in the vicinity of Ann Arbor on December 13, 1900, February 7, 21, and March 13, 1904. On March 24, 1907, a single specimen was noted west of Ann Arbor. A breeding record was secured for this locality on May 24, 1908 (Auk, XXV, p. 322), and in the fall of the same year—October 25—a pair was observed in the City.

BIRD NOTES FROM SALIDA, CHAFFEE COUNTY,
COLORADO.

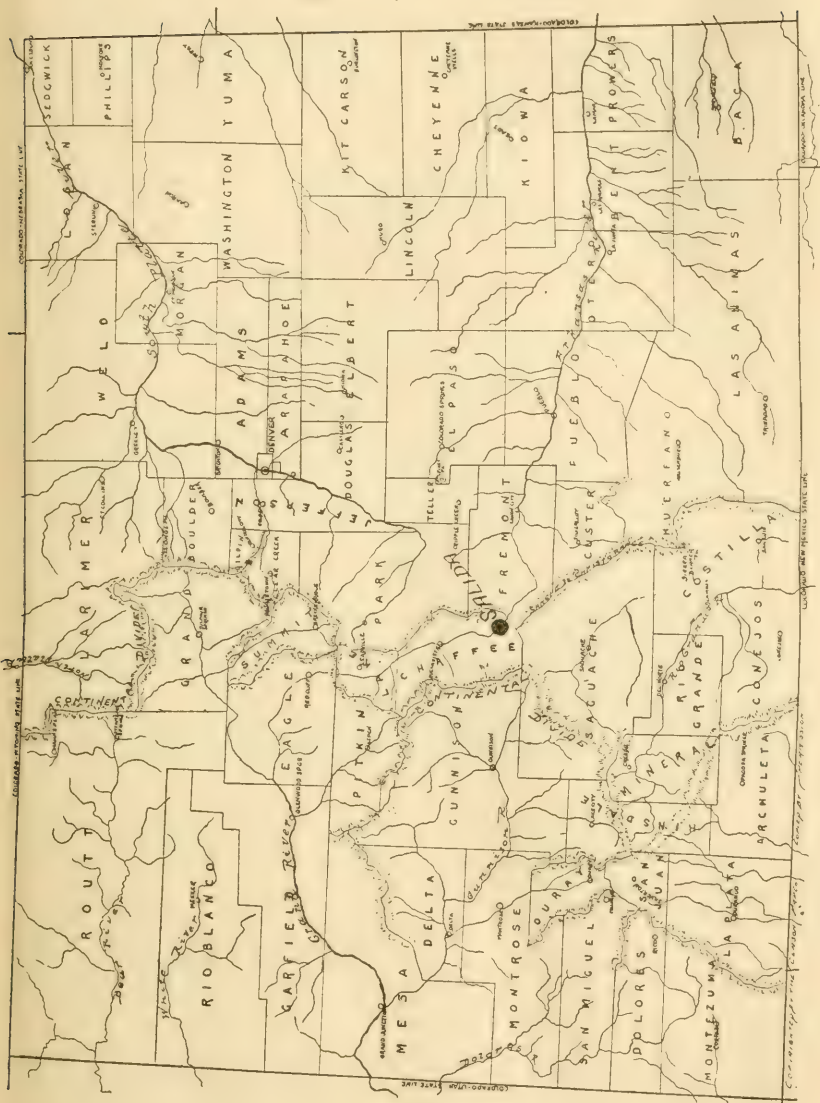
COMPILED FROM THE MEMORANDA OF JOHN W. FREY.

BY EDWARD R. WARREN.

MOST of the matter in the following pages is from notes taken by Frey in 1908, when he did a considerable amount of collecting at Salida, and a small portion is from notes taken by myself in two visits made in January in 1907 and 1908, and when passing through in June, 1909. As Frey has removed from Salida to Oregon, and there is no one else doing bird work in that region at present, I have thought it advisable to put his notes in such shape that they would be available for future workers in that field.

Salida is situated, as the map shows, near the southeastern border of Chaffee County, and somewhat south and east of the geographical center of the State of Colorado. The town is on the Arkansas River, just above its junction with the South, or as it is usually called in that vicinity, the Little Arkansas; the elevation as given by the railroad is 7,050 feet. To the westward is a wide level valley or park, but immediately to the east the valley narrows, and is not much more than wide enough for the river, wagon road, and railroad.

This large valley is bounded on the south by the Sangre de Christo Range, and on the west by the Continental Divide, and eastwardly by a range of lower mountains or hills. Not far from the town to the north and south the foothills begin, covered at first with piñons and cedars, and changing as the elevation increases, to Douglas spruce, aspens, yellow pines, Engelmann's spruce, and finally, on the higher peaks, timberline is reached. A number of these peaks in the Continental Divide are over 14,000 feet elevation. Sometime, when either the whole of Chaffee County shall have been studied by ornithologists, or even that portion from Salida to the summits of the ranges in the immediate neighborhood, we will have a very interesting list of birds. To be sure, Colorado contains a number of counties similarly situated, and whose bird life has been



MAP OF COLORADO, SHOWING POSITION OF SALIDA.

studied but little. Lake County, which joins Chaffee on the north, and within whose boundaries the main headwaters of the Arkansas take their rise, is entirely above 9,000 feet altitude, and would make an excellent well-defined area in which to study the life at the higher elevations, and it is to be hoped that some day some naturalist or student may be located in that county who can and will give it the study which it should have.

Frey's work was practically all done within a radius of from 2 to 3 miles from the town, in the open valley, among the first foothills, and along the South Arkansas. Outside of his work, and the trifle I have done myself, I know of no other done in the county, except a few notes by D. D. Stone, published in the 'Ornithologist and Oologist' in 1882, 1883, and 1884, and made about Hancock in the northwest part of the county. These, however, I have not seen myself. In this respect Chaffee County is like most of Colorado, a small portion of which, from Pueblo north to Denver, and thence northward to Boulder and Fort Collins, has been quite well worked, in some localities very thoroughly so, while the rest of the great area of the State has, to use a prospector's phrase, hardly been scratched. And thus it is with Chaffee County.

1. **Xema sabini.** SABINE'S GULL.—Two were taken near Salida, Sept. 26, 1908, one of which, an immature female, is now in the collection of Colorado College. This is quite a rare bird in Colorado, but a few records are added from year to year.

2. **Pelecanus erythrorhynchos.** WHITE PELICAN.—Three were seen April 25, 1909, by Arthur Haley, on the Arkansas River not far from Salida, and one was killed near the same place in the spring of 1908 and mounted by Frey.

3. **Anas platyrhynchos.** MALLARD.—One of the common ducks, but does not breed near Salida, and is seldom seen except in spring and fall. In 1908 made their first appearance March 27.

4. **Chaulelasmus streperus.** GADWALL.—The above remarks as to the Mallard apply equally well to this species. First noted in 1908 April 3.

5. **Nettion carolinensis.** GREEN-WINGED TEAL.—One of the common ducks; a few have been reported to Frey as breeding on the little Arkansas a few miles above Salida. First arrivals in 1908, March 27, and in 1909, February 11.

6. **Querquedula discors.** BLUE-WINGED TEAL.—Not common; Frey states that but few of this species come to this locality. First appearance in 1908, March 27.

7. **Querquedula cyanoptera.** CINNAMON TEAL.—Common in migration. First arrival for the year March 27, 1908.

8. *Spatula clypeata*. SPOONBILL.—Common in migration. In 1908 first noted April 24.

9. *Dafila acuta*. PINTAIL.—Common in migration. In 1909 the first were seen February 10.

10. *Marila affinis*. LESSER SCAUP DUCK.—Frey says that large numbers of this species came near Salida in the spring of 1908, the first arrivals being noted April 17, but that none were seen in the fall.

11. *Branta canadensis*. CANADA GOOSE.—One was killed March 30, 1908; it was not seen by Frey, he was told of it by the party who secured the bird, and it may have been one of the subspecies, either *hutchinsi* or *minima*. Geese of any species are rare at this locality.

12. *Botaurus lentiginosus*. BITTERN.—One taken April 16, 1908; one seen in captivity May 24, 1908. It is quite common in spring.

13. *Ardea herodias*. BLUE HERON.—Not uncommon in spring and fall. Quite a number were brought to Frey to be mounted in the spring of 1909. The first seen that year were on March 19.

14. *Egretta candidissima*. SNOWY HERON.—Frey thinks this species is a not uncommon spring and fall visitor. As a matter of fact it is not at all rare in Colorado; the taxidermists have a good many specimens brought to them for mounting. Mr. C. E. Aiken once told me that he no longer made any special note of those brought to him.

15. *Nycticorax nycticorax nævius*. BLACK-CROWNED NIGHT HERON.—Quite common in the spring.

16. *Nycticorax violaceus*. YELLOW-CROWNED NIGHT HERON.—The second specimen of this species recorded from Colorado, and the only one from the State now existing in any collection, and of which we have definite data, was taken on the Arkansas River, one mile north of Salida, May 1, 1908. Frey purchased the bird from a boy whose father killed it from a flock of five, and immediately after buying this specimen he went out to see if he could find the others, but was unsuccessful. The bird was a female. It is now mounted, and in the collection of Colorado College, at Colorado Springs. I recorded this find in 'The Condor,' XI, p. 33, Jan., 1909.

17. *Rallus virginianus*. VIRGINIA RAIL.—Taken near Salida in May, 1908.

18. *Porzana carolina*. SORA.—Frey took specimens in May, 1908. He thinks it may breed in the region as he has found it there the latter part of July.

19. *Fulica americana*. COOT.—Frey has mounted specimens taken near Salida.

20. *Steganopus tricolor*. WILSON'S PHALAROPE.—Seven seen near Salida, May 4, 1908.

21. *Recurvirostra americana*. AVOCET.—Two were taken near Salida, September 26, 1908, and mounted by Frey.

22. *Gallinago delicata*. WILSON'S SNIPE.—Small bunches wintered in a marshy spot close to the town in 1907-8, and 1908-9.

23. *Pisobia minutilla*. LEAST SANDPIPER.—Seen the last of April, 1908.

24. *Helodromas solitarius cinnamomeus*. WESTERN SOLITARY SAND-PIPER.—Several were taken by Frey, March and April, 1908. His notes say they were numerous the last of April, that they are quite common in spring, but rare in autumn.

25. *Actitis macularia*. SPOTTED SANDPIPER.—Common in summer along the streams, and breeds. First arrival for 1908, May 5.

26. *Numenius longirostris*. LONG-BILLED CURLEW.—Frey considers this species rare at Salida; he saw five April 29–30, 1908.

27. *Oxyechus vociferus*. KILLDEER.—Common in migration, and a number spend the summer and breed. First arrival for 1908, March 15.

28. *Zenaidura macroura carolinensis*. MOURNING DOVE.—A common summer resident and breeder. Arrived April 24, 1908, and about April 21, 1909.

29. *Accipiter velox*. SHARP-SHINNED HAWK.—Frey does not consider this species particularly common, though it occurs in the region.

30. *Accipiter cooperi*. COOPER'S HAWK.—Frey has seen only one, taken May 4, 1908. He says it was making a meal from a small bird when shot.

31. *Accipiter atricapillus*. GOSHAWK.—A not uncommon winter visitor.

32. *Buteo borealis calurus*. WESTERN REDTAIL.—A common summer resident. First arrival in 1908, February 24.

33. *Buteo swainsoni*. SWAINSON'S HAWK.—One was taken near Salida in the spring of 1909.

34. *Aquila chrysaetos*. GOLDEN EAGLE.—Occasionally seen in the valley in the winter, the nearest locality to Salida from which Frey has had a specimen being Poncha Springs, 5 miles distant.

35. *Falco sparverius*. SPARROW HAWK.—A common summer resident and breeder. Arrives early in the spring, sometimes by the middle of February.

36. *Pandion haliaetus carolinensis*. OSPREY.—Three were seen 2 miles west of Salida, April 25–29, 1908.

37. *Asio wilsonianus*. LONG-EARED OWL.—Frey has mounted a specimen taken near Salida.

38. *Asio flammeus*. SHORT-EARED OWL.—Frey has mounted a specimen taken near Salida.

39. *Nyctala acadica*. SAW-WHET OWL.—One was taken at Salida, December 7, 1908.

40. *Bubo virginianus pallescens*. WESTERN HORNED OWL.—Quite plentiful in the piñons and cedars close to Salida.

41. *Glaucidium gnoma*. PYGMY OWL.—Frey told me of four specimens of this little owl being killed near Salida the winter of 1907–8.

42. *Ceryle alcyon*. BELTED KINGFISHER.—Not uncommon along the streams in summer. Made its first appearance in 1908, April 16.

43. *Dryobates villosus monticola*. ROCKY MOUNTAIN Hairy WOOD-PECKER.—Resident: fairly common.

44. *Colaptes cafer collaris*. RED-SHAFED FLICKER.—A common summer resident and breeder; a few winter.

45. *Chordeiles virginianus henryi*. WESTERN NIGHTHAWK.—A common summer resident and breeder.

46. *Selasphorus platycercus*. BROAD-TAILED HUMMINGBIRD.—A summer resident. In May, 1908, the first were seen on the 17th.

47. *Tyrannus tyrannus*. KINGBIRD. Has been taken at and near Salida, and is probably not at all uncommon. First of season seen May 15, 1908.

48. *Tyrannus verticalis*. WESTERN KINGBIRD.—A common summer resident.

49. *Sayornis saya*. SAY'S PHOEBE.—A common summer resident and breeder; first bird for 1908 seen April 9.

50. *Myiochanes richardsoni*. WESTERN WOOD PEWEE.—A summer resident. First seen in 1908, May 18.

51. *Empidonax traillii*. TRAILL'S FLYCATCHER.—A summer resident, breeds, and is rather common. First appeared in 1908, May 17.

52. *Empidonax hammondi*. HAMMOND'S FLYCATCHER.—Frey took one May 21, 1908; he says they nest quite commonly at Salida.

53. *Otocoris alpestris leucolæma*. DESERT HORNED LARK.—Permanent resident and breeder. Probably more abundant in winter than in summer.

54. *Pica pica hudsonia*. MAGPIE.—Common permanent resident and breeder.

55. *Cyanocitta stelleri diademata*. LONG-CRESTED JAY.—A common breeder in the foothills and mountains near the town. In winter often come into the town to feed on whatever they can find.

56. *Aphelocoma woodhousei*. WOODHOUSE'S JAY.—A summer and winter resident, but not particularly common.

57. *Corvus corax sinuatus*. NORTHERN RAVEN.—I saw one near Salida, in January, 1908.

58. *Corvus brachyrhynchos*. CROW.—Frey thinks Crows are found at Salida. I have seen them from the train several miles east of there.

59. *Nucifraga columbiana*. CLARK'S CROW.—Rather common in the piñons and cedars in winter, and higher up in summer.

60. *Cyanocephalus cyanocephalus*. PIÑON JAY.—A common resident in the piñons and cedars in the foothills.

61. *Dolichonyx oryzivorus*. BOBOLINK.—Frey saw ten birds May 14, 1908, and secured four of them; these were all males. This is a new locality for the State.

62. *Xanthocephalus xanthocephalus*. YELLOW-HEADED BLACKBIRD.—A migratory visitor; Frey does not know of its breeding, though he has seen considerable numbers in spring.

63. *Agelaius phoeniceus fortis*. THICK-BILLED REDWING.—Summer resident, and breeds, but not in any great numbers. First arrivals March 10, 1908, and March 24, 1909.

64. *Sturnella neglecta*. WESTERN MEADOWLARK.—A common summer resident and breeder. First arrivals March 3, 1908, and March 11, 1909.

65. *Icterus bullocki*. BULLOCK'S ORIOLE.—A not uncommon summer resident, breeding at Salida.

66. *Euphagus cyanocephalus*. BREWER'S BLACKBIRD.—A very common summer resident, "nesting and raising young in every bush or willow patch, usually around swamps" (Frey).

67. *Hesperiphona vespertinus montanus*. WESTERN EVENING GRO-BEAK.—Frey saw two in Salida in January, 1908.

68. *Carpodacus cassini*. CASSIN'S FINCH.—A winter resident or visitor breeding somewhat higher in the mountains in the neighborhood. Frey says he saw but few of these birds about Salida the winter of 1908-9 which was unusually severe.

69. *Carpodacus mexicanus frontalis*. HOUSE FINCH.—A common summer resident and breeder about the town, but does not spend the winter there as it does at the lower altitudes.

70. *Loxia curvirostra stricklandi*. MEXICAN CROSSBILL.—A small flock was seen in the winter of 1908-9.

71. *Leucosticte tephrocotis*. GRAY-CROWNED ROSY FINCH.—Rosy Finches were unusually abundant about Salida the winter of 1908-9, which, as stated above was very severe, and especially so in the higher mountains where these birds usually stay. Frey says in his notes: "Thousands of these birds were here at all times during the winter. Every snow that came would drive them down to the valleys; when the south hills became bare they would split up in small bunches and scatter and climb up as the snow receded. I have taken all four varieties from a single bunch, and might say at a single shot. They seemed to be all varieties together, and the Gray-crowns were most plentiful, with Brown-caps a close second, and about one in four or five would be Hepburn's, and a very few black ones. These birds fed almost entirely on the tumbleweed (Russian thistle) seeds, and their throats and crops were literally crammed with them."

72. *Leucosticte tephrocotis littoralis*. HEPBURN'S ROSY FINCH.—As noted above, about twenty percent of the Rosy Finches taken by Frey were this form.

73. *Leucosticte atrata*. BLACK ROSY FINCH.—Only two or three of the large number of Rosy Finches taken by Frey were this species.

74. *Leucosticte australis*. BROWN-CAPPED ROSY FINCH.—While this species is a summer resident in this State above timberline, in winter it seems somewhat less numerous than the Gray-crowned, which is only a winter visitant. My own observations made elsewhere agree with Frey's on this point.

75. *Acanthis linaria*. REDPOLL.—Frey states that several flocks were about Salida the winter of 1908-9, feeding, like the Rosy Finches, on the tumbleweed seeds.

76. *Astragalinus tristis*. GOLDFINCH.—A resident; breeds, but is not very common.

77. *Astragalinus psaltria*. ARKANSAS GOLDFINCH.—Frey sent me a skin which is typical of the dark form formerly called *mexicanus*. The bird is no doubt a more or less common summer resident. Frey found a nest late in October containing small young birds.

78. *Spinus pinus*. PINE SISKIN.—Rather common in summer, and breeds. Frey speaks of their feeding on the seeds of the dandelion in the park and on the lawns of the town. I have seen the bird near the town in winter.

79. *Passer domesticus*. HOUSE SPARROW.—Abundant in the town.

80. *Poocetes gramineus confinis*. WESTERN VESPER SPARROW.—A summer resident, but Frey does not regard it as very common.

81. *Passerculus sandwichensis alaudinus*. WESTERN SAVANNAH SPARROW.—A common summer resident and breeder.

82. *Chondestes grammacus strigatus*. WESTERN LARK SPARROW.—A summer resident, not very common.

83. *Zonotrichia querula*. HARRIS'S SPARROW.—Frey took a female of this species December 15, 1908, adding another to the few records for this bird for Colorado.

84. *Zonotrichia leucophrys*. WHITE-CROWNED SPARROW.—Frey says: "It is a common summer resident and nests, and raises its young around the brush piles close to town."

85. *Zonotrichia leucophrys gambeli*. INTERMEDIATE SPARROW.—There were several skins of this subspecies among a lot which Frey sent me. It is no doubt common in the spring and fall during the migrations.

86. *Zonotrichia coronata*. GOLDEN-CROWNED SPARROW.—Frey took one April 19, 1908, this being the second record for the species for Colorado. I have already recorded this in 'The Condor,' XI, p. 83, Jan., 1909. Certainly Salida seems to be an excellent locality for collecting.

87. *Spizella monticola ochracea*. WESTERN TREE SPARROW.—A common winter resident.

88. *Spizella passerina arizonæ*. WESTERN CHIPPING SPARROW.—A common summer resident and breeder.

89. *Spizella breweri*. BREWER'S SPARROW.—Frey took several in the spring of 1908; it breeds in the region.

90. *Junco hyemalis connectens*. INTERMEDIATE JUNCO.—A winter resident; one of the less common of the Juncos.

91. *Junco mearnsi*. PINK-SIDED JUNCO.—Winter visitor; one of the most common Juncos.

92. *Junco phænotus caniceps*. GRAY-HEADED JUNCO.—A winter resident, and probably breeds in the hills not so very far from the town. It is greatly to be regretted that these notes are not more complete as to the Juncos. Frey says as to their occurrence in the winter of 1908-9: "Thousands of these birds wintered here on the tumbleweed seed. There are several varieties, but I have never collected many and do not know just what they are."

93. *Melospiza melodia montana*. MOUNTAIN SONG SPARROW.—A summer resident, but not very common.

94. *Melospiza lincolni*. LINCOLN'S SPARROW.—Common in the migrations, and may breed not very far from the town.

95. *Pipilo maculatus montanus*. MOUNTAIN TOWHEE.—The summer Towhees are no doubt this subspecies; it is fairly common. In January, 1907, I saw Towhees among the cedars and piñons north of the town, but did not collect any, so do not know if they were *montanus* or *arcticus*, the latter being supposed to be the winter bird in Colorado, but as a matter of fact both forms occur in winter.

96. *Oreospiza chlorura*. GREEN-TAILED TOWHEE.—A summer resident, breeding at the foot of the mountains near Salida, but most common during the migrations.

97. *Zamelodia melanocephala*. BLACK-HEADED GROSBEEK.—A common summer resident and breeder, arriving early in May.

98. *Calamospiza melanocorys*. LARK BUNTING.—A summer visitor, not common.

99. *Piranga ludoviciana*. WESTERN TANAGER.—Not very common, arriving about the middle of May, and breeding at a somewhat higher altitude than Salida.

100. *Hirundo erythrogaster*. BARN SWALLOW.—A very common summer resident and breeder, arriving about the middle of May.

101. *Iridoprocne bicolor*. TREE SWALLOW.—A common summer resident, coming late in April.

102. *Tachycineta thalassina lepida*. VIOLET-GREEN SWALLOW.—A common summer resident, arriving in middle of May.

103. *Bombycilla garrula*. BOHEMIAN WAXWING.—A winter visitant. Frey took specimens Nov. 29, 1908.

104. *Lanius borealis*. NORTHERN SHRIKE.—A winter visitant, not uncommon. Frey says that two or three followed the large flocks of Rosy Finches about, and must have killed a good many.

105. *Lanius ludovicianus excubitorides*. WHITE-RUMPED SHRIKE.—Arrives the very last of April or first of May, is rather common, but Frey does not think they breed, as he says he has never seen them in summer.

106. *Vermivora celata*. ORANGE-CROWNED WARBLER.—Taken early in May, 1908; should breed in the region, but Frey has no notes as to this.

107. *Dendroica æstiva*. YELLOW WARBLER.—A common summer resident and breeder, arriving about the middle of May.

108. *Dendroica coronata*. MYRTLE WARBLER.—Seen only in migration; in fact, Frey's notes are only for spring, when it arrived May 5 (1908), and was found in company with the next species.

109. *Dendroica auduboni*. AUDUBON'S WARBLER.—Common during the migrations, but probably they all breed at higher elevations.

110. *Oporornis tolmiei*. MACGILLIVRAY'S WARBLER.—Frey has seen only a few, in the spring.

111. *Geothlypis trichas occidentalis*. WESTERN YELLOWTHROAT.—A common summer resident and breeder, arriving the very last of April. Frey says it is about the commonest warbler in the region.

112. *Icteria virens longicauda*. LONG-TAILED CHAT.—Frey took this species in 1908.

113. *Wilsonia pusilla pileolata*. PILEOLATED WARBLER.—Arrives about the middle of May, and Frey says it is a common summer resident, dividing with the Yellow Warbler and the Yellowthroat the honor of being the most abundant of the warblers.

114. *Setophaga ruticilla*. REDSTART.—Frey took one, and saw another, May 17, 1908; these are all he has seen.

115. *Anthus rubescens*. PIPIT.—Sometimes abundant in migration.

116. *Cinclus mexicanus unicolor*. WATER OUSEL.—Not uncommon along the streams; resident, and a breeder.

117. *Oroscoptes montanus*. SAGE THRASHER.—Frey has taken it in the spring. I see no reason why it should not be a breeder in the region.

118. *Mimus polyglottos leucopterus*. WESTERN MOCKINGBIRD.—A rare visitor in spring and summer.

119. *Dumetella carolinensis*. CATBIRD.—A summer resident, coming about the middle of May; apparently not very common.

120. *Salpinctes obsoletus*. ROCK WREN.—A common summer resident and breeder.

121. *Troglodytes aëdon parkmani*. WESTERN HOUSE WREN.—A common summer resident, arriving about the first of May.

122. *Certhia familiaris montana*. ROCKY MOUNTAIN CREEPER.—Frey took one in February, 1909. Probably not an uncommon resident.

123. *Sitta carolinensis nelsoni*. ROCKY MOUNTAIN NUTHATCH.—A rather common resident.

124. *Penthestes gambeli*. MOUNTAIN CHICKADEE.—A common resident.

125. *Psaltiriparus plumbeus*. LEAD-COLORED BUSHTIT.—Frey took this species at Salida, Dec. 14, 1908.

126. *Myadestes townsendi*. TOWNSEND'S SOLITAIRE.—Not uncommon, at least in winter. Salida is rather low for a breeding station for this bird, though one or two nests have been found at a much lower elevation in Colorado.

127. *Hylocichla ustulata swainsoni*. OLIVE-BACKED THRUSH.—Frey has seen but few near Salida.

128. *Hylocichla guttata*. ALASKA HERMIT THRUSH.—Seen only in the migrations. Frey found these birds exceedingly abundant after a severe storm which struck Salida, May 3, 1908.

129. *Planesticus migratorius propinquus*. WESTERN ROBIN.—A common summer resident and breeder, and a few remain during the milder winters. The spring migration begins between the first and middle of March.

130. *Sialia mexicana bairdi*. CHESTNUT-BACKED BLUEBIRD.—Arrives early in March, but does not seem to remain to breed.

131. *Sialia currucoides*. MOUNTAIN BLUEBIRD.—A common summer resident and breeder, arriving about the first of March.

AN APPARENTLY NEW SPECIES OF CARRION HAWK
OF THE GENUS *IBYCTER*.

BY WILLIAM E. D. SCOTT.

***Ibycter circumcinctus* spec. nov.**

Type, Princeton University Collection, No. 8993, adult male, Chubut, Territory of Chubut, Patagonia.

Size. Total length, about 24 inches; wing, 16.25 inches; tail, 10.30 inches; tarsus, 2.55 inches; culmen from front of cere, 1.30 inches; cere to forehead, 0.40 inch.

Color. General color black and white; black prevailing above, white prevailing beneath.

Forehead, lores, sides of head and crown deep velvety black; the feathers of the entire crown and top of head lanceolate and prolonged into a recurved crest on the occiput. Neck concolor with head on the top and sides; throat pure white; the black of the sides of the neck joined by a band of black below the white throat patch; the feathers of this band are not all pure black but some of them have one web largely encroached upon by white; *the effect is a band of black below the throat patch more or less variegated by white on some of the feathers; this band is about an inch in width*; lower part of the under neck pure white, the black of the sides of the neck confining the white of this region to a narrow area, widening into the pure white of the breast. Mantle and lower back black with a dull green gloss and some shading of deep brown; rump and upper tail-coverts pure white. Tail, base definitely white, the rectrices here having ivory white shafts; thence black prevails for seven inches, the shafts being shining black; a terminal white band about an inch and a half broad where the shafts of the rectrices are again ivory white. Seen from below the tail presents the same pattern, the colors all being duller. Wings above black with a dull undertone of deep brown and with dull green reflections glossing the darker shades; the upper wing-coverts as above except that the small feathers along the bend of the wing are in strong contrast, pure white; this feature is marked and when the wing is closed a half inch or more of white borders the radial portion of the bend; quills all black with a deep brown tone, both the primaries and secondaries being conspicuously tipped with pure white. Under wing-coverts and axillaries pure white. Lower parts. Chin and throat pure white, separated from the immaculate white of the breast by a broad band somewhat variegated with white markings on some feathers. The white on the lower throat is confined to the center, bounded by black on either side and widening to three inches on the upper breast, the black border reaching

well down on the sides anteriorly and defining the upper abdominal region; the rest of the lower surface, including the lower tail-coverts, pure white. Feet and tarsi deep yellow; the soles shaded with dull brown. Iris hazel brown. Bill yellow with a shading of blue close to the cere. Cere and naked skin of forehead orange with a strong carmine shading.

Geographical Range. So far as known the eastern part of Territory of Chubut or Chupat, Patagonia.

This carrion hawk, apparently heretofore undescribed, was received in an exchange of bird skins from the Museo La Plata in Buenos Aires. The bird is undoubtedly fully adult, and was taken near the settlement of Chubut in February, 1896. The original number is 8 and the bird was labelled *Ibycter americanus*. It is excluded from the group of this genus to which *americanus* belongs by the difference of the coloring of the under parts and tail. In certain respects it approaches *Ibycter carunculatus* but is much larger than that bird and from a widely remote district. The only other bird near it in coloration is *I. megalopterus*, with the throat, breast and chest black. This species, too, so far as known, is confined to the Pacific side of the Chilian Andes and perhaps encroaches upon extreme southern Patagonia to the eastward.

THE TAGGING OF WILD BIRDS: REPORT OF PROGRESS IN 1909.

BY LEON J. COLE.

AT THE meeting of the American Ornithologist's Union in Cambridge in November, 1908, the writer presented a proposition for the study of the migrations and other movements of wild birds by means of numbered bands, which should be placed around the birds' legs.¹ The great advantage claimed for this method was the accurate data that might be accumulated relative to the movements of individual birds. This work had already been attempted on a

¹ Cole, Leon J. The Tagging of Wild Birds as a means of studying their Movements. Auk, Vol. XXVI, No. 2, pp. 137-143, April, 1909.

small scale during one season (1908) by a committee acting under the authorization of the New Haven Bird Club. This committee consisted of Dr. Louis B. Bishop and Mr. Clifford H. Pangburn of New Haven, with the writer as chairman. Owing to the fact that comparatively little actual field work could be expected from local members, it was decided to broaden the scope of the banding work, making it, if possible, of a national character. With this in mind, it was brought before the ornithologists at Cambridge, as stated. The proposition appeared to incite interest and to meet with considerable favor from those present at the meetings, and a sufficient number agreed to help in the work to make it appear advisable to proceed on the plans outlined. The present report is a brief summary of what has so far been accomplished.

First, however, it may be well to make some mention of similar work in this and other countries. Mention was made last year of Audubon's experiment of placing silver wire on the legs of a brood of young Phœbes, two of which were found nesting in the same locality the following season; also of Taverner's work, which was very similar in its plan to that proposed, and which resulted in the taking in Louisiana of a Flicker banded the previous summer in Iowa. The capture of two ducks wearing bands of unknown source was also mentioned. The writer was unaware at that time, however, of the interesting investigations in this line made by Dr. Paul Bartsch in the heron rookeries near Washington, D. C., as well as of the excellent progress that has been made in two or three countries in Europe. Dr. Bartsch's results will be discussed later in connection with those of this season on the banding of Night Herons. The European experiments deserve mention at this time, the following account of them being taken largely from a letter from Herr Jakob Schenk, adjunct of the Royal Hungarian Central Bureau for Ornithology, and dated at Budapest, April 20, 1909.

In 1899 Mr. Christian Mortensen of Viborg, began marking birds with aluminum rings, first Starlings, then later, Storks, Ducks and the larger Birds of Prey. His results were published in 'Dansk. Ornithologisk Vereeniging Tidskift,' Vol. I.

In 1903, the bird observatory at Rossitten, Germany, started marking, chiefly *Corvus cornix*, but later large numbers of Storks

and Gulls (*Larus ridibundus*). The results were published in the 'Journal für Ornithologie' for the corresponding year. This work is being directed by Dr. Thienemann.

In Hungary marking was started in 1908. A number of papers have been published giving the results,¹ which are most gratifying but which we cannot review at this time, further than to say that some of the most notable results have been obtained with Storks. A number of these birds tagged in central Europe have been reported from Africa, and one from away down in Natal, South Africa. One example which is of considerable interest is reported in 'The Pictorial,'² an illustrated magazine published at Durban, South Africa, as follows: "Last year a stork marked near Königsberg in 1906 was reported to the observatory [at Rossitten]. It was snared in the autumn by natives on the north back of the Fittri Lagoon, and the ring and foot came into the possession of a French officer. On his return to France in 1908, he found out the meaning of the legend on the ring, 'Vogelwarte, Rossitten, Germania,' and forwarded the interesting relic to its destination."

According to Herr Schenk, Mr. W. C. Tait, Oporto, was this season going to attempt banding birds in Portugal, and he adds that the work will probably be taken up in France as well, while in England a similar movement has been begun by Mr. H. F. Witherby, the editor of 'British Birds.'³ It is stated⁴ that "already [July, 1909] some 1500 rings have been sent out" for use.

Preparation for the Season of 1909.

The bands used in 1908 were largely of the "closed" type, that is they were complete rings of aluminum, which consequently could be used only on very young birds whose feet had not yet

¹ Schenk, Jakob. Bericht über die Vogelmarkierungen im Jahre 1908. *Aquila*, Vol. XV, 1908, 8 pp.

Schenk, Jakob. Der Frühjahrszug des weissen Storches in Ungarn. *Journal für Ornithologie*, Jan., 1909, pp. 39-98. pl. v.

² Far-travelled Storks. *The Pictorial*, Vol. IV. No. 31, May 6, 1909, p. 975. I am indebted to Mr. J. H. Fleming of Toronto for the copy of the magazine containing this note.

³ The scheme was propounded in *British Birds*, Vol. III, No. 1, June, 1909. See *Auk*, Vol. XXVI, July, 1909, pp. 332, 333.

⁴ Bird Marking and Migration. *Knowledge and Illustrated Scientific News*, N. S., Vol. VI, No. 7, July, 1909, p. 274.

reached full size or in which the bones were still so soft that the band could be forced gently over. These bands have some advantages, but also a number of serious objections. The first of these is that anyone proposing to do banding must have on hand a variety of bands of several different sizes; and unless one knows before hand just what species of birds are going to be banded, it is apt to be just the size of band needed that one will be out of. This is obviated by the use of the "open" bands, two sizes of which have been found practicable to use on birds ranging in size from warblers to ducks and the larger owls. The second objection to the closed band is that of expense. In the first place they are cut from aluminum tubing, which is more expensive than sheet aluminum; but what is of far greater importance, the open bands can be stamped with the address and serial number while they are flat, before being rolled, while the marking of the 'closed' bands is a difficult and tedious (and hence expensive) process.

The styles of bands finally decided upon were made from sheet aluminum of the required thickness and cut to the desired size. The smaller band (designated No. 2) was from sheet aluminum 0.5 mm. thick, and are approximately 4 mm. wide and 26 mm. in length. The larger bands (No. 4) are 6 mm. wide, 44 mm. long, and 0.7 mm. in thickness. The "return address" is impressed on the flat band with a steel stamp, made in one piece, so that the whole address is put on with a single impression. Through the kindness of the editors of 'The Auk' we have been allowed to use the name of this journal for the "return address," the inscription reading

NOTIFY

THE AUK

NEW YORK

as here shown. Although arranged, as indicated in three lines, the letters are less than 1 mm. ($\frac{1}{32}$ inch) in height, so that the whole goes easily on the width of even the small band, and uses up only 7 mm. of its length. The number is now added beside this inscription, the whole occupying about 15 or 16 mm. of the length of the band. If the blank end of one of the No. 2 bands be cut off close to the number, the portion bearing the inscription and number may now be rolled into a small circular ring with an internal

diameter of approximately 4 mm. when the ends of the metal meet evenly. This is about the size that would ordinarily be used for sparrows and the like. For larger birds the band is merely cut a little longer, while on the other hand, the ring may be made smaller by allowing the ends to overlap, the extra weight being insignificant. In practice, as a matter of fact, it is found more convenient to allow the ends to overlap a bit in all cases.

The record blanks which are sent out with the bands, and are to be filled in when the bands are used, are essentially the same as those described last year. A somewhat different method is employed, however, of keeping these records when they are turned in. Instead of being copied on larger cards, they are gone over carefully to see that they have all the requisite data, and are then filed serially in the order of their numbers, since they bear, of course, the number of the band used. When a "return" record now comes in, that is, when a banded bird is found and reported, the data of this are filled in on a red slip of the same size as the banding record, which is on white paper. The return records can then be filed in their appropriate positions with the banding records, where on account of their conspicuous color, they may easily be found when desired.

Having made these arrangements for the season's work, all that remained was to distribute the bands and banding record blanks among persons who were willing to assist in the undertaking. A number of well known ornithologists, and some others connected with educational institutions, were asked to assist by acting as local agents for distribution of bands to field workers in their vicinity. A considerable number complied with this request, and to these we are deeply grateful for their disinterested assistance. In addition to this quite a few persons made application for bands directly, as a result of the publication in 'The Auk' last April of the paper setting forth the plans of the work. In all something over 5,000 bands have been distributed this year, and we consider it extremely satisfactory for the first season's work that approximately one-fifth of these were used and are now being worn by a very considerable number of species of wild birds. This leads us to a brief consideration of the

Results of the Season's Work.

The actual number of records that have been returned to date¹ is 911. It is safe to say, however, that if all the records of birds that have been banded were in, the number would easily reach the 1000 mark, since several who did banding have not as yet, for one reason or another, been able to send in all their blanks. The number of returns from banded birds that have been received is also encouraging, but it is more difficult to say just how many of these there are, since a "return" may be for a bird which is perhaps found dead in the same locality soon after banding (there are several such cases due to one cause or another), or for one not taken for a long time, and then at an entirely different place. Record is made of all such cases which come to notice, and there are now in the file 31 of the red slips, which shows that slightly over 3 per cent. of the birds banded have been heard from since. This should not be taken as indicating actually the degree of efficiency of the system, since it must be remembered that there is a chance of hearing from the other 97 per cent. for a number of years yet — for as long, in fact, as the span of life of the birds.

As to the kinds of birds banded, these were of great variety, especially as banding was done in all sections of the northern United States. As would be expected, however, perhaps the species most often banded, with the exception of those which live in colonies, was the Robin, and the first good return record was from a bird of this species. I wish it were possible to mention individually all those who have helped in the work, but the list would be too long. I cannot refrain, however, from naming a few of those who have rendered most signal service. Messrs. Leonard W. Pearson and Alfred C. Redfield of Wayne, Pa., members of the Delaware Valley Ornithological Club, sent in altogether 219 records, nearly 200 of which were for Black-crowned Night Herons banded at Barnstable, Mass. Prof. S. A. Courtis, of Detroit, banded 99 birds, mostly Common Terns, at the St. Clair Flats. Mr. Charles W. Miller, director of the Worthington Society for the Study of Bird Life, Shawnee-on-Delaware, Pa., caught many birds, especially Orioles

¹ December 1, 1910.

and Song Sparrows, in traps, banded them, and set them at liberty. Some of the birds he caught again six or eight times after they had been banded. Mr. Miller sent in 74 records. Dr. R. M. Strong, of the University of Chicago, took an active interest in the work, and as a result of his own efforts, and the bands he gave out, 72 birds were banded, 37 of them being by Mr. Ralph W. Chaney, also at the University of Chicago. Mr. William L. Finley of Milwaukee, Ore., sent in 41 records, and Mr. A. A. Saunders, with the U. S. Forestry Service in Montana, 32, both of them including a variety of species. Mr. Roy Thompson, of Cando, N. Dak., together with Mr. D. S. Englar, sent in 32 records, and so on. The writer, with the assistance of several friends, succeeded in banding 209 birds, most of which were young Common and Roseate Terns on the Wee Pecket Islands in Buzzards Bay.

Time will not permit of an enumeration or discussion of all the "returns" from the banding that have been received, so only some of the more interesting cases will be given. These will be enough, I think, to convince the most skeptical that the scheme is practicable and promises valuable results, even if we did not have also the notable results which have been gained abroad by this kind of work.¹

The first return record obtained by us was for a Robin which was banded with one of the old-style closed bands in 1908. The data may be given briefly as follows:

No. N. H. 251. Robin, half fledged. Banded in an orchard at Kingston, R. I., August 4, 1908, by Leon J. Cole and Wm. F. Kirkpatrick. Shot at Kingston, R. I., by Mr. Kirkpatrick, on April 9, 1909. This bird was taken the following spring after being banded, and at the poultry plant only 200 yards or so from the orchard in which it was reared. We know nothing, of course, as to where it had been in the meantime, but at any rate we have incontrovertible evidence that it had returned to its place of nativity. It should be said in passing that this Robin was not shot for the purpose of obtaining the band, and that Mr. Kirkpatrick had no

¹ Since the above was written there have been several interesting "returns," including that of a Bluebird banded near Portland, Maine, and killed in Rutherford County, N. C., and of a Robin banded near Sandusky, Ohio, and taken near Nashville, Tenn.

thought of the possibility of its being banded until he picked it up. The bird was shot in connection with certain pathological investigations being made at the Rhode Island Agricultural Experiment Station. Sparrows and a few other birds were taken to determine in how far the so-called "blackhead" disease of turkeys might be prevalent among them, and what rôle they might perhaps play in its dissemination.

Of most interest are the returns from the Black-crowned Night Herons, tagged when nestlings, in a rookery at Barnstable, Mass., between June 21, and July 8, 1909. Of these seven have since been reported, as follows:

No. 4675. Banded June 23, by Leonard S. Pearson. Shot August 27, at Holliston, Mass., by Mr. Albert Bailey, who "took it for a hawk" after his chickens! Time, 65 days; distance, 70 miles.

No. 4686. Banded June 24, by Leonard S. Pearson. Caught in a steel trap August 29 at Berkley (near Taunton), Mass., by A. R. Graham and Son, who have a trout farm, and have to wage war against the herons because of their depredations on the young trout. Time, 66 days, distance, 45 miles.

No. 4696. Banded June 24, by Leonard S. Pearson. Taken at Minot (near Marshfield), Mass., August 18, by Dr. E. L. Parker, who writes that it "had evidently been shot as it had a broken wing." He killed the bird, and found the band. Time, 55 days; distance, 35 miles.

No. 4705. Banded July 8, by Alfred C. Redfield. Shot at Goat Island, Cape Porpoise, York Co., Maine, Sept. 11, by Clifford H. Poole. Time, 65 days; distance, 120 miles.

No. 4724. Banded June 24 (?) by Alfred C. Redfield. Shot at Wellfleet, Mass., about the middle of August, by Elmer Wiles. Time, about six weeks; distance, 20 miles.

No. 4770. Banded July 8, by Alfred C. Redfield. Shot by unknown gunner; found by Mr. Fred Seaver on Sept. 4, at East Orleans, Mass. Time, 58 days; distance, 15 miles.

No. 4792. Banded July 8, by Alfred C. Redfield. "Found on the marshes in a crippled condition" at Seabrook, N. H., Sept. 17, by Mr. Charles C. Buswell. Time, 71 days; distance, 90 miles.

These records bring out a number of interesting points. First,

it is interesting to note the vicissitudes of these young Herons; the mortality rate among them must be very high, that such a considerable number should fall into man's hands. It further illustrates that the average man with a gun is not at all particular as to what he shoots, since few birds are safe that fly within range, and the young and inexperienced Night Herons have to pay a heavy tribute. It may be by this sort of selective elimination, rather than by the actual learning on the part of individuals, that many birds have become so wary of man, and especially of man when he carries a gun. Another noticeable feature is the direction of dispersal of these birds after leaving the rookeries. As will be seen by a glance at the accompanying sketch-map (Fig. 1), the general trend of dispersal was northerly. I suspect, however, that instead of being interpreted as a definite northward migration of these birds, it should be looked upon rather as a scattering of the young in all directions in search of food, which must be relatively difficult to obtain near the rookeries where the parents have been foraging during the breeding season. The reason that this movement appears to be largely northerly in the present instance may be due to the fact that there is no land to the south, dispersal in that direction being therefore precluded. However, the data lead to the conclusion that merely because young birds appear in a certain locality in the autumn, it must not be inferred that they have necessarily come from the north. Mr. Brewster, in his 'Birds of the Cambridge Region,' speaks of the fact that young Night Herons often appeared there in the late summer, and casually suggests that they have come from further north. From what the present records teach us, it seems not at all unlikely that these birds which appeared near Cambridge in the fall may have been reared on Cape Cod.

In the present connection it will be of interest to compare with those given above the results obtained by Dr. Paul Bartsch with Black-crowned Night Herons which he banded at Washington, D. C.,¹ of which work, as has already been stated, the writer was unaware when he made his last report. Dr. Bartsch used a method in all essentials like the one used by us. All his Herons were

¹ Bartsch, Paul. Notes on the Herons of the District of Columbia. Smiths. Misc. Coll., Vol. XLV., Pub. No. 1419, Quart. Issue, Vol. I, Pts. 1 and 2, pp. 104-111, pls. xxxii-xxxviii. Washington, 1904.

banded in the vicinity of Washington. The dates of banding are not given, but were during the breeding season. In 1902 one "return" resulted, the specimen being shot September 24, 1902, at Abingdon, Md., about fifty-five miles northeast of Washington.

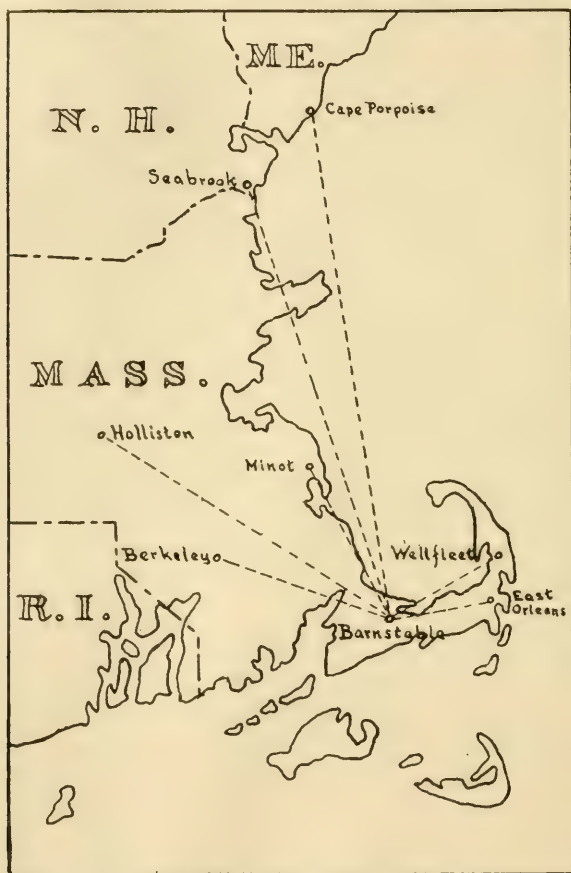


Fig. 1. Dispersal of young Black-crowned Night Herons from colony at Barnstable, Mass

In 1903 seventy-eight young were banded. There were five returns from these: one was captured July 19, in a street in Leesburg, Va.; the second was caught July 20 in a fish trap on the Potomac

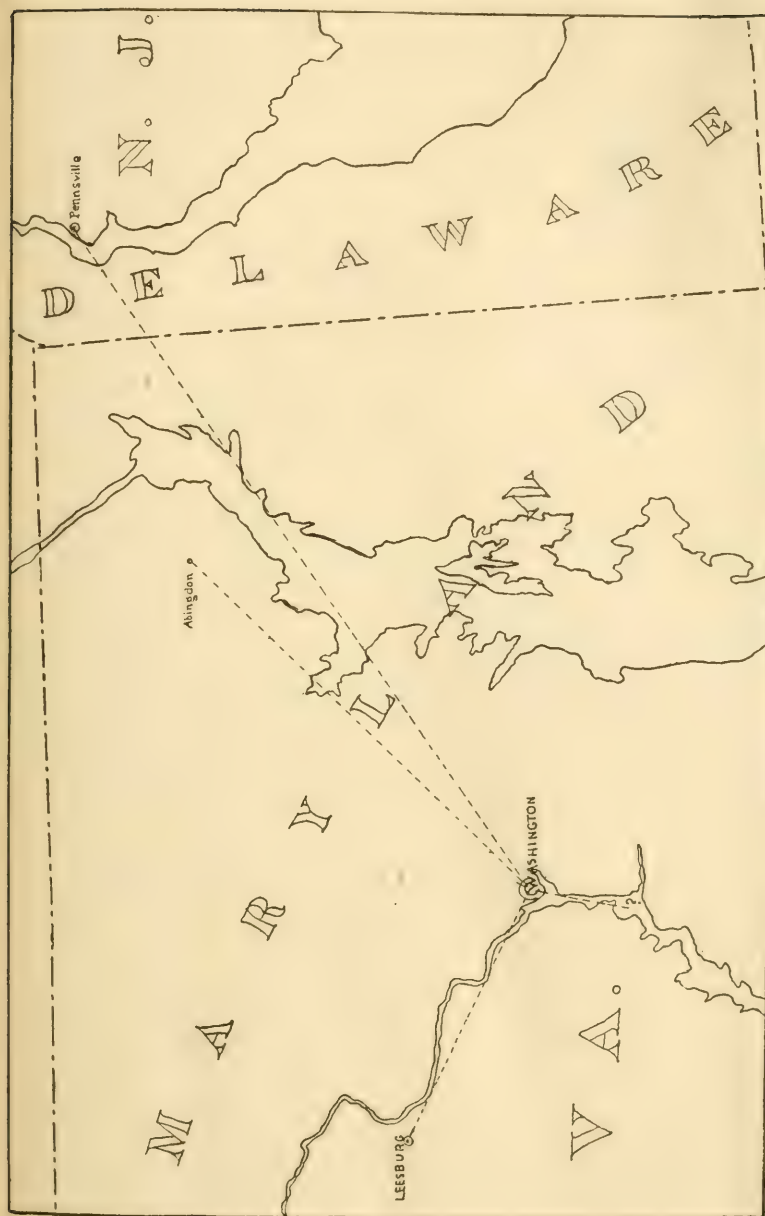


Fig. 2. Dispersal of young Black-crowned Night Herons from colony near Washington, D. C. (From data given by Bartisch.)

below Washington; the third was shot at Pennsville, N. J., July 18; while the fourth and fifth were found dead under the tree in which they had been marked. The second chart (Fig. 2), constructed from Dr. Bartsch's data, together with a consideration of the dates in the two cases, shows the striking similarity between his results and those obtained by us in New England. Here, again, although the number of records is small, we get a suggestion of the general dispersal of the young as soon as they are able to get away from the parent colony. Furthermore, there is an indication that this dispersal preponderates in northerly directions.

One or two others of the more interesting "returns" will be all that our time will allow:

No. 577. Flicker, fledgling, tagged at Kingston, R. I.; June 30, 1909, by John R. Eldred. Shot by a student in a different building at the same place, September 22, 1909. Reported by Prof. John Barlow.

No. 832. Sora Rail, adult, was caught May 5, 1909, on Wooded Island, Jackson Park, Chicago, and banded by Archibald Church. On May 8, three days later this same bird was captured alive on the same island by Paul Pause, Jr.

No. 988. Robin, 6 days old, banded at Berwyn, Pa., by Leonard S. Pearson, June 6, 1909. Found dead at Devon, Pa., one and one-half mile from where banded, on July 4, 1909, by George A. McCook. In commenting on this record Mr. Pearson says it shows that the parent birds must feed and care for the young when they leave the nest prematurely, since these birds were unable to fly when they started out into the world.

No. 1930. Red-breasted Merganser, fledgling, banded August 7, 1909, at Plum Lake, Vilas Co., Wis., by Ely Whitehead. Shot on Big Lake St. Germain in the same county by F. Wagner, on September 28, 1909.

No. 4169. Common Tern, about two weeks old, tagged at the St. Clair Flats, Lake St. Clair, July 5, 1909. Shot at the Flats, not far from place of banding, on August 23, 1909. Reported by Lou J. Eppinger of Detroit.

Other records might be enumerated, but those already given are sufficient to indicate the sort of results that may be expected from this work, and that are, in fact, being obtained. Since the birds

have gone South there has been a lull in the "returns," but it is to be hoped, if any of them are so unfortunate as not to survive to visit us next spring, that they will at least arrange to fall into someone's hands, and that the records may finally come to us. It is an exciting moment when a "return" comes in, and while the banding record for the number is being looked up, and some light is thrown on that particular bird's past history and travels, a story that in most cases has ended as a tragedy.

And now a few questions of general import should be considered. Many have asked: "But what is going to be the effect of this banding work upon the birds? Is it likely that they will be shot in the hope of securing the bands? Will not the bands injure their legs, or catch in the nest materials, or on twigs? Will not the handling of the young disturb the nests so that the parents will desert and abandon their young? These and other objections have been raised, and we must face the questions frankly. As to the first question, that I believe may be answered unreservedly in the negative. So far as the results of this season go, they show that in no case was a bird killed for the purpose of securing the band; in fact, there was no knowledge of the existence of the band until the bird was picked up. In the one case where there might have been such an expectation, we are assured by Mr. Kirkpatrick that he had no thought of the possibility of taking a banded bird until he had the Robin in his hand and noticed the band on its leg. By no one would the indiscriminate shooting of birds in the hope of recovering bands be more discountenanced than by those who are interested in this method of investigating bird migration.

Considering the second question, there appears to be little or no danger of injury to the leg by the bands. In the case of nearly all the "returns" the question has been asked of the finder whether the birds showed any signs of having been incapacitated or inconvenienced by the bands, or whether the legs showed any abrasion or other injury as their result. All the replies received have been in the negative. On the other hand, Mr. Benjamin T. Gault, who banded some Purple Martins and other birds in Du Page Co., Ill., reported one case in which a young bird of the former species lost its life as a result of the nesting material becoming entangled in the band, while in several cases it was reported that birds which were at the

time nearly ready to fly anyway could not be induced to remain in the nest after they had been removed in the process of banding. In several instances banded young were later found dead near the nest, but it was not definitely ascertained whether this was in any way due to the banding. It is not an uncommon thing to find the young out of a nest even when they have not been banded. This is probably, however, the greatest danger to the birds from our work, and it is one that we must learn to avoid. To this end we have been collecting testimony of the experience of as many of our field workers as we could, and should welcome more. If there are certain species which are especially liable to be disturbed in this way, or if the young are more likely to desert the nest prematurely at any particular age, then we want to find out, and govern our operations accordingly. There is probably little or no danger of desertion of the young by the parents on account of their being disturbed; every one who has made many observations afield, knows that birds who will desert their eggs at the slightest provocation, will stay by their young with the greatest fidelity.

These are, as I have said, some of the points upon which we need more data, and there are also a number of others. For one thing the bands we are at present using, though answering very well, are not in every respect satisfactory. The aluminum is rather stiff and lacks sufficient pliability, so that several have complained of having bands break when they were attempting to use them. Others have objected that it was very difficult to shape the bands to the legs of small birds and to bend them on; but we have found by personal experience that this could be done very readily with the aid of a small pair of round-nosed pliers, while in addition a pair of strong scissors was needed for snipping off the ends of the bands. We hope to be able to find a kind of aluminum that is more pliable, and will overcome some of the objections, but any one who can invent an improved band will be doing the cause a great service. It is a question, also, as to what extent these bands are practicable for use on sea birds and others that go into salt water, which may so corrode the aluminum as to render the inscription and number illegible.

ADDENDUM.

At a meeting of persons especially interested in the proposition to study the movements of birds by the banding method, held in the Hotel Endicott, New York City, on the evening of December 8, it was decided to form a definite organization for carrying on the work. Accordingly a committee was appointed which drew up the following:

ARTICLES OF ASSOCIATION.

Article I. Name.

The name of this organization shall be the American Bird Banding Association.

Article II. Object.

The object shall be the banding of wild birds and the recording of accurate data on their movements.

Article III. Membership.

Any person interested in the objects of the Association may become a member upon payment of the annual dues.

Article IV. Dues.

The dues shall be one dollar annually, payable January first.

Article V. Officers.

An executive committee of five members, elected by the Association, shall transact all business of the Association and shall render an annual report. This committee shall have the power to fill all vacancies which may occur in its membership.

Article VI.

Upon the written petition of twenty (20) members, made to the Executive Committee, any question may be brought to a vote by the Association.

Article VII.

Any member more than two years in arrears for dues shall automatically cease to be a member of the Association.

The organization thus started with a membership of over thirty persons, being mostly members of the American Ornithologists' Union who were in attendance at the annual meetings of that

organization then being held in New York City. It is earnestly hoped that all other members of the Union who are interested in this proposition will aid in the work by becoming members of the Association. We look also for similar support from the members of other Ornithological Clubs, and in fact from any persons who may take an interest in the movement. Persons desiring to become members should send their names to the Secretary-Treasurer, Mr. C. J. Pennock, Kennett Square, Chester County, Pennsylvania.

It should be understood, however, that it is not necessary for one to become a member of the Association in order to assist in the actual work of tagging birds, though it is believed that such persons as are willing to assist in the field work will in most cases be sufficiently interested to lend also the small financial aid which will be conferred by actual membership. Members will receive without further expense all reports of the Association, and such other circulars or bulletins as may be published.

In addition to having merely the names of those who wish to enroll as members, the Executive Committee would be glad to communicate with all persons who will take a supply of the bands and assist in the actual banding of birds. The committee desires especially to get into communication with persons who have access to large colonies of birds suitable for banding, and with hunting clubs, organizations for game preservation, and the like, who could as a result of banding their birds, not only help in the general questions of migration, dispersal, etc., but could at the same time tell what is becoming of their own birds.

It is proposed to publish later a leaflet giving full directions for using the bands.

LEON J. COLE, *President and Chairman of the Executive Committee*, College of Agriculture, University of Wisconsin, Madison, Wis.

C. J. PENNOCK, *Secretary-Treasurer*, Kennett Square, Chester Co., Pa.

LOUIS B. BISHOP, 356 Orange St., New Haven, Conn.

GLOVER M. ALLEN, 16 Louisburg Square, Boston, Mass.

THOS. S. ROBERTS, 1603 Fourth Ave., S., Minneapolis, Minn.

A LIST OF BIRDS OBSERVED AT ASHLAND, VIRGINIA.

BY G. C. EMBODY,

Cornell University.

THE town of Ashland is situated near the center of Hanover County, about ninety-nine miles south of Washington and seventeen miles north of Richmond. The region occupies a position intermediate between the typical piedmont plateau and the coastal plain, the former occurring three miles to the west, the latter a somewhat greater distance to the east.

From Ashland to the southward the drainage is into the Chickahominy River; to the northward, into the South Anna and Pamunkey Rivers, the former river tributary to the latter. The range in altitude for the whole area is approximately from two hundred to two hundred and forty feet above sea-level. The region is poorly drained and in many places standing water occurs at varying depths from two to six feet below the surface. Much land is unfit for cultivation because of this excessive amount of water. In such fields tangles of weeds and briars prevail with scattered patches of sedge, berry bushes and sassafras, all of which furnish food or shelter for such winter residents as Song, Field, and Tree Sparrows, Juncos, Cardinals, and Carolina Wrens; and later, nesting sites for Cardinals, Indigo Buntings, Prairie Warblers, Chats, White-eyed Vireos, Catbirds, and Brown Thrashers.

The woods, which cover a rather large area, may be conveniently grouped under three types; the high, dry oak wood, the sandy, rather moist pine, and the low moist, sometimes swampy wood in which predominate the tulip-tree (*Liriodendron tulipifera*), sweet gum and elm (*Ulmus americana*). The pine type seems to occupy the greatest area and consists almost entirely of trees less than eight inches in diameter. The sweet gum-elm type ranks second in extent, while the dry oak woods occur in scattered places on the well drained hills. The sweet gum-elm woods seem to be the richest in bird life, during migrations as well as during the breeding season.

There are two bodies of water, Railroad Pond, two miles to the

north, and King's Pond, three miles or less to the west. These are not sufficiently large nor do they furnish the necessary conditions for attracting or supporting more than an occasional duck or shore-bird. This in a large measure accounts for the absence of such birds from the list. The single duck which came to my notice was in too great a hurry to be identified with certainty.

The climate is free from extremes of heat and cold. The range of temperature between normals for January and July averages 42° F. There are, however, conspicuous alternations of warm and cold spells in spring, which injure early blooming fruit trees, especially peaches, and which doubtless affect in no inconsiderable way the movements of migrating birds.

The region lies within the Carolinian Faunal Area but close to the isotherm marking the northern limit of the Austroriparian. This is indicated by the following comparison of the temperatures taken at Ashland in 1908, with those marking the northern limits of the Lower Austral and Carolinian respectively:—

Sum of mean daily temperature, above 43° F.

Ashland 1908	16212
Northern limit Austroriparian	18000 ¹
Northern limit Carolinian	11500 ¹

Mean temperature for the six hottest consecutive weeks.

Ashland 1908	77.1 F.
Northern limit Austroriparian	78.8 ¹
Northern limit Carolinian	71.6 ¹

From this condition of affairs a few lower austral forms might be expected to invade the region about Ashland, but aside from the Black Vulture and Mockingbird no typical ones were observed. One should be on the lookout for such forms as Chuck-will's-widow, Brown-headed Nuthatch, Southern Hairy Woodpecker, Red-cockaded Woodpecker, Blue Grosbeak, Swainson's Warbler and Prothonotary Warbler.

In the following list only those birds are mentioned which were observed by the writer within a radius of five miles of Ashland and during the period from September 10, 1907, until June 17, 1908.

¹ Merriam, *Life Zones and Crop Zones of the United States*, 1898, p. 55.

I am indebted to Mr. E. A. Evans, Director of the Richmond Experiment Station, for the climatological data here used. For more detailed information regarding the physiography, drainage, and soils the reader is referred to the 'Soil Survey of Hanover County, Virginia' by H. H. Bennett and W. E. McLendon, U. S. Department of Agriculture, 1906.

It is with the hope that someone may continue the work and furnish us with a reasonably complete catalogue of the birds of Hanover County, that this preliminary affair is put forth.

Annotated List.

1. **Podilymbus podiceps.** PIED-BILLED GREBE.—Occurs in open waters from about November 20 until April 9. Occasional pairs were seen on Railroad and King's Ponds.

2. **Botaurus lentiginosus.** BITTERN.—A rare winter visitant seen but once, November 2, 1907.

3. **Butorides virescens.** LITTLE GREEN HERON.—A summer resident, not common. One or more may usually be found at King's Pond or in the swamp two miles south of Ashland.

4. **Actitis macularia.** SPOTTED SANDPIPER.—Found in small numbers during April, May, June and September. It may breed but a nest has not yet been discovered.

5. **Oxyechus vociferus.** KILLDEER.—A few were seen during the latter part of March, during April and October. All were feeding in wet meadows or ploughed fields.

6. **Colinus virginianus.** BOB-WHITE.—A fairly abundant resident, more in evidence during the period of song, from the middle of April through the greater part of July.

7. **Meleagris gallopavo silvestris.** WILD TURKEY.—Turkeys still exist in some numbers in the more unsettled parts of Hanover County. One was brought in by a farmer who had killed several during the fall, five miles to the northwest of Ashland.

8. **Zenaidura macroura carolinensis.** MOURNING DOVE.—Rather common from March 15 until late in November. Occasionally seen in winter.

9. **Cathartes aura septentrionalis.** TURKEY VULTURE.—Common throughout the year. Breeds.

10. **Catharista urubu.** BLACK VULTURE.—The "Carriion Crow" seems to be nearly as abundant as the preceding species and may breed.

11. **Accipiter velox.** SHARP-SHINNED HAWK.—Recorded but twice during the period, October 20 and November 5, 1907.

12. **Accipiter cooperi.** COOPER'S HAWK.—One only was identified with certainty, January 16, 1908.

13. **Buteo lineatus.** RED-SHOULDERED HAWK.—Not uncommon as a summer resident. A nest with half-grown young found May 11, 1908. Occasionally seen in winter.

14. **Buteo platypterus.** BROAD-WINGED HAWK.—Apparently rare; one record only, March 15, 1908.

15. **Falco sparverius.** SPARROW HAWK.—Not uncommon during the fall migrations. Occasionally seen in winter, and in spring as late as April 28.

16. **Strix varia.** BARRED OWL.—Several observed at different times in a swamp about two miles south of Ashland. A young female just out of the nest was captured May 14, 1908. An adult male captured May 11, 1908, was smaller and considerably darker underneath than specimens from New York.

17. **Otus asio.** SCREECH OWL.—An uncommon resident. Breeds.

18. **Coccyzus americanus.** YELLOW-BILLED CUCKOO.—A tolerably common summer resident and breeder, arriving from the south about May first.

19. **Ceryle alcyon.** BELTED KINGFISHER.—A summer resident occurring in small numbers and restricted to the ponds and larger streams.

20. **Dryobates villosus.** HAIRY WOODPECKER.—A resident, apparently not common. A nest with young ready to leave was located in a dead burned pine, May 4, 1908.

21. **Dryobates pubescens medianus.** DOWNY WOODPECKER.—Rather common throughout the year. Breeds.

22. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.—A few were seen in September and October, 1907. I cannot account for its absence or rareness in the late spring of 1908.

23. **Centurus carolinus.** RED-BELLIED WOODPECKER.—Very uncommon in spring, becoming common in late summer and fall.

24. **Colaptes auratus luteus.** FLICKER.—Common from May 15 until the middle of November. Rare in winter.

25. **Antrostomus vociferus.** WHIP-POOR-WILL.—A very common summer resident and breeder, arriving about the middle of April.

26. **Chordeiles virginianus.** NIGHTHAWK.—A rather common summer resident, becoming abundant during the September migrations.

27. **Chætura pelagica.** CHIMNEY SWIFT.—Arrives about April 21, from which time it is abundant until October 1.

28. **Archilochus colubris.** RUBY-THROATED HUMMINGBIRD.—A common summer resident, arriving about May 4.

29. **Tyrannus tyrannus.** KINGBIRD.—Common from about April 28 until the latter part of September.

30. **Myiarchus crinitus.** CRESTED FLYCATCHER.—Arrives the latter part of April, from which time it is common in every wood of the sweet gum-elm type until the middle of September.

31. **Sayornis phœbe.** PHÆBE.—Not uncommon as a breeder. The earliest record for 1908 was March 2.

32. *Myiochanes virens*. WOOD PEWEE.—A very common summer resident and breeder, appearing about May 1 and departing the middle of September.

33. *Empidonax virescens*. ACADIAN FLYCATCHER.—Breeds rather commonly in the swamp south of Ashland. It arrives from the south the fore part of May.

34. *Empidonax minimus*. LEAST FLYCATCHER.—An apparently rare transient. Its characteristic call was heard but once, May 10, 1908.

35. *Cyanocitta cristata*. BLUE JAY.—Uncommon in summer. A few were seen during the winter of 1907-08.

36. *Corvus brachyrhynchos*. CROW.—Abundant at all times.

37. *Corvus ossifragus*. FISH CROW.—A fairly common resident.

38. *Molothrus ater*. COWBIRD.—Fairly common in spring but rather rare during the breeding season. The eggs were not observed.

39. *Agelaius phoeniceus*. RED-WINGED BLACKBIRD.—Arrives early in March, and is uncommon as a breeder. The absence of cat-tail marshes makes necessary the use of low bushes along streams for nesting places.

40. *Sturnella magna*. MEADOWLARK.—A resident, abundant from the middle of March until about November 20; fairly common during winter.

41. *Icterus spurius*. ORCHARD ORIOLE.—A rather common summer resident, arriving about May 5. Breeds.

42. *Icterus galbula*. BALTIMORE ORIOLE.—A transient, apparently uncommon. A few were seen on two occasions only, May 1 and 4, 1908.

43. *Euphagus carolinus*. RUSTY BLACKBIRD.—They appeared in large numbers March 15, 1908, but none were seen after March 18. This probably does not represent their true status.

44. *Quiscalus quiscula*. PURPLE GRACKLE.—An uncommon summer resident, arriving early in March.

45. *Passer domesticus*. ENGLISH SPARROW.—Abundant at all seasons.

46. *Carpodacus purpureus*. PURPLE FINCH.—Occurs in small flocks throughout the winter. Very common during April and the fore part of May; last seen May 11, 1908.

47. *Astragalinus tristis*. GOLDFINCH.—Common in flocks during the winter months. Abundant during April and May. Breeds.

48. *Spinus pinus*. PINE SISKIN.—Seven were seen with a flock of Goldfinches, January 16, 1908, two of which were collected.

49. *Poecetes gramineus*. VESPER SPARROW.—An uncommon migrant which remains for a few days only. Observed March 22 and 24, 1908.

50. *Passerculus sandwichensis savanna*. SAVANNAH SPARROW.—Only one individual observed, March 24, 1908.

51. *Ammodramus savannarum australis*. GRASSHOPPER SPARROW.—A common summer resident. Arrives early in April. Breeds.

52. *Passerherbulus henslowi*. HENSLOW'S SPARROW.—I saw but one specimen which was collected May 11, 1908.

53. *Zonotrichia leucophrys*. WHITE-CROWNED SPARROW.—An uncommon transient and rare winter visitant. May usually be found about March 15.

54. *Zonotrichia albicollis*. WHITE-THROATED SPARROW.—A common winter visitant, occurring as late as May 11, 1908. Abundant during April and November.

55. *Spizella monticola*. TREE SPARROW.—Occurs during the winter months but is not common.

56. *Spizella passerina*. CHIPPING SPARROW.—An abundant summer resident, arriving about March 15.

57. *Spizella pusilla*. FIELD SPARROW.—Occurs abundantly at all seasons of the year.

58. *Junco hyemalis*. SLATE-COLORED JUNCO.—A winter visitant, occurring in large numbers until about April 6.

59. *Melospiza melodia*. SONG SPARROW.—A very common winter visitant. None were seen later than April 6; however at Fredericksburg, fifty miles to the northward, I heard them singing as late as June 10.

60. *Melospiza georgiana*. SWAMP SPARROW.—Apparently very uncommon. Two were seen March 15, 1908.

61. *Passerella iliaca*. FOX SPARROW.—Common for a few days beginning about March 15. A few observed October 20, 1907.

62. *Pipilo erythrophthalmus*. TOWHEE.—A common summer resident of general distribution. Arrives early in March. A few remain during winter.

63. *Cardinalis cardinalis*. CARDINAL.—A common resident, more abundant in spring and summer.

64. *Zamelodia ludoviciana*. ROSE-BREASTED GROSBEEK.—A very uncommon transient. One seen on each of the following dates:—May 5, 10 and 11, 1908.

65. *Passerina cyanea*. INDIGO BUNTING.—An abundant summer resident, arriving about May 1.

66. *Piranga erythromelas*. SCARLET TANAGER.—An uncommon transient. It arrives about April 29.

67. *Piranga rubra*. SUMMER TANAGER.—A very common summer resident, arriving about April 28.

68. *Progne subis*. *PURPLE MARTIN.—A fairly common resident, occurring from about April 16 until the fore part of September.

69. *Petrochelidon lunifrons*. CLIFF SWALLOW.—A number were seen in September, 1907. This species must be further investigated before any general statements can be given relative to its abundance and breeding.

70. *Hirundo erythrogaster*. BARN SWALLOW.—A common summer resident, appearing about April 28.

71. *Iridoprocne bicolor*. TREE SWALLOW.—A rather common transient; the first swallow to appear in spring, arriving about April 6 (1908), or perhaps a week earlier, depending upon the weather.

72. *Riparia riparia*. BANK SWALLOW.— Large numbers were seen throughout the month of September, 1907, but none came to my notice the following spring.

73. *Stelgidopteryx serripennis*. ROUGH-WINGED SWALLOW.— A fairly common summer resident, arriving about May 4.

74. *Bombycilla cedrorum*. CEDAR WAXWING.— Occurs irregularly throughout the year; not known to breed.

75. *Lanius ludovicianus migrans*. NORTHERN LOGGERHEAD SHRIKE.— An uncommon winter visitant, occurring from the middle of October until the first of April; not known to breed. Ashland specimens are darker than typical *migrans*.

76. *Vireosylva olivacea*. RED-EYED VIREO.— A very common summer resident and breeder, arriving about April 28.

77. *Lanivireo flavifrons*. YELLOW-THROATED VIREO.— Rather common during migrations, arriving the latter part of April. A few undoubtedly breed.

78. *Vireo griseus*. WHITE-EYED VIREO.— A fairly common summer resident and breeder, arriving about April 27.

79. *Mniotilta varia*. BLACK AND WHITE WARBLER.— Very common during migrations, arriving about April 6. A few remain to breed.

80. *Compsothlypis americana usneæ*. NORTHERN PARULA WARBLER. Common during migrations, arriving about April 25. Those specimens which came to hand were migrating birds and the northern form. A female was observed May 4, 1908, building a nest thirty feet up in a pine tree. This nest was abandoned a week later and before the female could be determined as to its subspecies.

81. *Dendroica æstiva*. YELLOW WARBLER.— A fairly common summer resident and breeder. It arrives from the south about April 15.

82. *Dendroica cærulescens*. BLACK-THROATED BLUE WARBLER.— A tolerably common transient, appearing late in April.

83. *Dendroica coronata*. MYRTLE WARBLER.— An uncommon transient, arriving the fore part of March. A few may winter.

84. *Dendroica pensylvanica*. CHESTNUT-SIDED WARBLER.— A tolerably common transient. It appears late in April and remains about two weeks.

85. *Dendroica striata*. BLACK-POLL WARBLER.— A fairly common transient from about May 2 until 17.

86. *Dendroica virens*. BLACK-THROATED GREEN WARBLER.— Occurs as a transient, apparently uncommon. A few were seen in late September, 1907, and one only was noted the following spring, May 11, 1908.

87. *Dendroica vigorsii*. PINE WARBLER.— Very common during migrations and tolerably common in summer. They arrive as early as March 2. A female was observed feeding its young, May 11, 1908.

88. *Dendroica discolor*. PRAIRIE WARBLER.— A common summer resident and breeder; arrives late in April.

89. *Seiurus aurocapillus*. OVENBIRD.— Very common from about May 1 to September 20. Breeds.

90. *Seiurus motacilla*. LOUISIANA WATER-THRUSH.—A very common summer resident, occurring in every wet wood and along the larger streams. It arrives about March 26.

91. *Oporornis formosa*. KENTUCKY WARBLER.—Common as a summer resident but restricted to the larger wet woods. It arrives early in May.

92. *Geothlypis trichas*. MARYLAND YELLOW-THROAT.—Very common from April 27 until the latter part of September.

93. *Icteria virens*. YELLOW-BREASTED CHAT.—An abundant breeder. Arrives about April 28.

94. *Wilsonia citrina*. HOODED WARBLER.—A summer resident, common in all moist woods; first appears about April 28.

95. *Setophaga ruticilla*. REDSTART.—Arriving about April 24, it is abundant throughout the summer. Nest building was observed as early as April 28.

96. *Mimus polyglottos*. MOCKINGBIRD.—A resident, more common during spring and summer than in winter.

97. *Dumetella carolinensis*. CATBIRD.—An abundant breeder, arriving the third week in April.

98. *Toxostoma rufum*. BROWN THRASHER.—A summer resident and very common; arrives the last week in March.

99. *Thryothorus ludovicianus*. CAROLINA WREN.—A common resident, found in all sorts of habitats furnishing sufficient shelter.

100. *Troglodytes ædon*. HOUSE WREN.—A very common breeder, arriving about April 11.

101. *Nannus hiemalis*. WINTER WREN.—Fairly common throughout the winter, leaving for the north during the first week in April.

102. *Certhia familiaris americana*. BROWN CREEPER.—Very common throughout the winter. It leaves for the north about March 26.

103. *Sitta carolinensis*. WHITE-BREASTED NUTHATCH.—A resident, at no time very common. Breeds.

104. *Bæolophus bicolor*. TUFTED TITMOUSE.—A resident, fairly common in winter and abundant at other times.

105. *Penthestes carolinensis*. CAROLINA CHICKADEE.—A common and generally distributed resident.

106. *Regulus satrapa*. GOLDEN-CROWNED KINGLET.—A very common winter visitant, remaining until about April 6.

107. *Regulus calendula*. RUBY-CROWNED KINGLET.—Fairly common during the month of March; not observed during the winter of 1907-08.

108. *Polioptila cærulea*. BLUE-GRAY GNATCATCHER.—Arrives about April 10 and breeds commonly in woods of the dry oak type.

109. *Hylocichla mustelina*. WOOD THRUSH.—An abundant breeder, arriving about April 28.

110. *Hylocichla fuscescens*. VEERY; WILSON'S THRUSH.—A transient of which but three individuals were seen, April 11.

111. *Hylocichla ustulata swainsoni*. OLIVE-BACKED THRUSH.—A transient, apparently uncommon; observed May 11 and 17, 1908.

112. *Hylocichla guttata pallasi*. HERMIT THRUSH.—An uncommon transient, arriving as early as March 2. A few may winter.

113. *Planesticus migratorius*. ROBIN.—A common summer resident occasionally wintering in some numbers. They appear in large flocks about the middle of February.

114. *Sialia sialis*. BLUEBIRD.—A common resident, more abundant in March than at other times.

THE COURTSHIPS OF GOLDEN-EYE AND EIDER DUCKS.¹

BY CHARLES W. TOWNSEND, M. D.

THE intelligence shown by Golden-eyes or Whistlers (*Clangula clangula americana*) in frequenting bodies of water in or near the heart of cities where they are safe from persecution, renders easy a study of their habits, yet very little has been published on the somewhat remarkable courtship performances of this bird. I have watched these courtships at Ipswich and once at Barnstable, Massachusetts, but my most intimate studies have been made in the Back-bay Basin of the Charles River between Boston and Cambridge.

The spring is of course the time when courtship actions are most indulged in, and they begin on mild days in February and continue until the departure of the birds for the North in April. In the autumn months, however, it is not uncommon to see the same performance given by both the adult and young males, although but incompletely carried out in the latter case.

The courtship action varies considerably, but a typical and complete one may be described as follows: One or more males swim restlessly back and forth and around a female. The feathers of the cheeks and crest of the male are so erected that the head looks large and round, the neck correspondingly small. As he swims along the head is thrust out in front close to the water,

¹ Read at a Meeting of the Nuttall Ornithological Club, Cambridge, Mass., March 7, 1910.

occasionally dabbing at it. Suddenly he springs forward, elevating his breast, and at the same time he enters on the most typical and essential part of the performance. The neck is stretched straight up, and the bill, pointing to the zenith, is opened to emit a harsh, rasping double-note, *zzee-at*, vibratory and searching in character. The head is then quickly snapped back until the occiput touches the rump, whence it is brought forward again with a jerk to the normal position. As the head is returned to its place the bird often springs forward kicking the water in a spurt out behind, and displaying like a flash of flame the orange-colored legs.

This appears to be the complete performance, and the female, although usually passive, sometimes responds by protruding her head close to the water in front, and then bringing it up so that it also points to the zenith. Further than this, I have not seen her go. It must be remembered that even as late as March there are many young males whose plumage resembles that of the female, and although the males are of larger size, it is often difficult to distinguish them from the females. That the female does take part to this limited extent in the nuptial performance, I have, however, convinced myself.

There are many variations of this curious action. It may be curtailed so that the thrusting of the head up into the air alone remains, or it may be limited to the upward thrust of the head and the jerk to and from the rump. When the birds are at such a distance that the note cannot be heard it is impossible to say whether it is always emitted when the bill is opened, but I have observed birds close at hand go through the performance silently. I have also seen them thrust out the head in front in such a way as apparently to scoop up the water, and then elevate the head, the bill pointing straight up, but closed as if they were drinking the water, although I doubt if this is the case. Sometimes the head is held on the rump for several seconds before it is snapped into place.

At Barnstable on March 28, 1909, I saw a male Whistler, after ardently performing the courtship action near a female, fly off to a distance of about a hundred yards. The female swam rapidly after him with head stretched close to the water but lifted up vertically from time to time in the courting manner and she soon joined her mate who copulated with her.

The display of the brilliant orange-red tarsi and feet by the males is particularly interesting. These members in the females are pale yellow in color, and it may be supposed that the males have attained the more attractive orange-red as a result of sexual selection. They certainly make good use of this brilliant color in the courtship display, for the flash of the orange feet contrasting with the snowy flanks of the bird and the dark water is extremely effective and noticeable even at a considerable distance. In this connection it is interesting to note that the legs and feet of both male and female Barrow's Golden-eye (*Clangula islandica*) are alike pale yellow. I am not familiar with the courtship of this bird, and as far as I know it has never been described but I think it is reasonable to infer that the display of the legs as in the American Golden-eye is *not* a part of the performance. As the Barrow's Golden-eye lacks the peculiar localized swelling of the lower wind-pipe found in the American species, one might suppose that the peculiar musical part of the performance was also lacking in this western species. A study of the courtship of this very similar yet very different bird is much to be desired.

There is no more unusual and bizarre sight in the bird world than a dozen or more beautiful Golden-eye drakes crowding restlessly around a few demure little females and displaying these antics of head, neck and foot, while ever and anon their curious love-song pierces the air.

In his Labrador Journal of July 11, 1775, Cartwright says: "The water too, instead of pans of ice, was mottled over with ducks and drakes, cooing amorously; which brought to my remembrance, the pleasing melody of the stockdove," and he adds in a foot-note: "Eider-ducks make a cooing at this time of the year, not unlike the first note of the stockdove." During a recent trip to Labrador with Mr. Bent in May and June,¹ 1909, the study of the courtship of the Eider (*Somateria dresseri*) was one of my greatest interests. Everywhere we went among the rocky islands that line the coast, pairs and little bands of Eiders abounded. We found twenty nests on an island of a few acres, and, on a walk around Esquimaux Island, we must have seen at least 500 of these

¹ Auk, Vol. XXVII, 1910, pp. 1-18.

beautiful birds. They were usually in pairs, and, when flying, the female preceded, closely followed by the male. This was certainly the rule when the birds were flying about unaware of the presence of man, but, when disturbed or frightened by his presence, the male often flew first in his eagerness to get away from danger. Sometimes several pairs, apparently mated, would swim about together or rest on the rocks close to the water, while at other times one or two females would be surrounded by six or eight males that were crowding about them to win their favors.

The actual courtship of the Eider may be recognized from afar by the love-note of the male which can be expressed by the syllables *aah-ou* or *ah-ee-ou*, frequently repeated, and, while low and pleasing in tone, its volume is so great that it can be heard at a considerable distance over the water. On a calm day, when there were many Eiders about, the sound was almost constant. While the syllables *aah-ou* express very well the usual notes, there is much variation in tone from a low and gentle pleading, to a loud and confident assertion. In fact the tones vary much as do those of the human voice, and there is a very human quality in them, so much so that when alone on some solitary isle, I was not infrequently startled with the idea that there were men near at hand.

But the showy drake Eider does not depend on his voice alone, he displays his charms of dress to best advantage, and indulges in well-worn antics. It always seemed to me a pity that the magnificent black belly should disappear when the drake is swimming on the water, and the bird evidently shares my sentiments, for, during courtship, he frequently displays this black shield by rising up in front, so that at times in his eagerness he almost stands upon his tail. To further relieve his feelings he throws back his head, and occasionally flaps his wings. The movements of the head and neck are an important part of the courtship, and although there is considerable variation in the order and extent of the performance, a complete antic is somewhat as follows: The head is drawn rigidly down, the bill resting against the breast; the head is then raised up until the bill points vertically upwards, and at this time the bill may or may not be opened to emit the love-notes. Directly after this the head is occasionally jerked backwards a short distance still rigidly, and then returned to its normal position. All this the drake

does swimming near the duck, often facing her in his eagerness, while she floats about indifferently, or at times shows her interest and appreciation by facing him and throwing up her head a little in a gentle imitation of his forcefulness.

The courtship of the Eider, although less striking and elaborate, bears a strong family resemblance to that of the Golden-eye.

NOTES ON THE FLORIDA GALLINULE (*GALLINULA GALEATA*) IN PHILADELPHIA COUNTY, PA.

BY RICHARD F. MILLER.

It is a generally well known fact that our birds are slowly becoming fewer in the vicinity of our great cities, and on this account it is gratifying to record the discovery of a species inhabiting a restricted area near Philadelphia, which appeared here only recently, and is annually increasing in numbers. This is the Florida Gallinule, a large bird, whose existence as a summer resident in Southeastern Pennsylvania was unknown until 1904, when I found it breeding at Port Richmond, Philadelphia County, in a deep-water cattail marsh, and, as in all such discoveries, the detection of the birds was purely accidental.

Probably the reason it has escaped notice is on account of its secretive habits, and this alone has saved it from destruction by gunners. In my opinion, it has been overlooked chiefly because very few of our ornithologists are enthusiastic marsh nest hunters, and it seems to me that their ardor is deteriorating, as few of them are ambitious enough to don old clothes and wade through slimy mud and dirty water in quest of knowledge of marsh birds. This is probably the reason why there is so little known regarding the nidification and other habits of these birds.

A brief summary of our knowledge of the occurrence of the Florida Gallinule in this locality, prior to its discovery as a summer resident, will not be amiss. It appears not to have been very well known to the older ornithologists, who generally regarded it as a

rare transient. In Warren's 'Birds of Pennsylvania' (2d revised edition, page 73), we learn that it was a "regular, but rather rare spring and fall migrant," and that it "probably breeds." In Stone's 'Birds of Eastern Pennsylvania and New Jersey' it is listed (page 32) as a "rare or irregular transient about Philadelphia," and on page 68 as a "regular transient but not very common." There is apparently nothing further on record regarding the bird's status in the Delaware Valley. There are, however, some additional records of birds shot, but all of these were evidently migrants and in no sense modify the statement made above.

The marsh where the Florida Gallinule was first found nesting in the Delaware Valley, is located at Port Richmond, in Philadelphia County, in the northeastern part of the city, less than five miles from the city hall, and is the largest marsh in that part of the country. It comprised about twenty acres when I first visited it, but it has since been reduced to about one third of that size. It lies between two streets (which are dirt-covered sewers used only by pedestrians) and the bank of the Delaware River, and has been divided into three parts by the intersecting of two streets and a canal. The bank carries a railroad, which is used daily by a noisy shifting engine, and a large dump on the west is worked daily, and is the chief cause of the rapid decrease in the size of the marsh.

In the immediate vicinity of the marsh there are several large manufacturing plants. This marsh is now covered with a dense growth of cattails growing in water from one to four feet deep; formerly it contained large patches of calamus, but the struggle for existence of this reed ceased in 1906, when the water killed it. Some spatterdocks and *Peltandra* still grow along the edges and duckweeds cover the water. The marsh is about six feet below the surface of the streets, and is drained by several sluices, the water rising and falling with the tide in the Delaware River, and is thus always quite fresh.

My acquaintance with the Florida Gallinule began in this marsh on June 1, 1904, when, while hunting for Least Bittern's nests, I suddenly flushed a bird from a patch of reeds. My first nest was found on June 21, 1904, and the second (of the same pair) on July 1; both sets consisted of ten eggs. This was probably the only pair inhabiting the marsh in 1904, but as I did not thoroughly explore it, not then being inured to marsh exploration, it is impossible for me

to be positive. Subsequently, however, I have carefully explored the marsh every year, and the results of my investigations and observations I am now placing on record.

The Florida Gallinule is an early breeder in the Port Richmond marsh. It puts in an appearance in April, arriving generally after the middle of the month, and before the vegetation of the marsh has reached a height sufficient to afford them concealment. To avoid destruction at this season from gunners they skulk and hide in the rank, tangled mass of dead reeds. It commences nest building as soon as the reeds are high enough for them to build in, and the nest is seldom hidden, often being placed in thin reeds, and sometimes in a solitary clump.

The following records comprise my data upon its time of arrival and the date when the first nests were discovered.

Arrived April 21, 1905; had 12 highly incubated eggs on May 31.									
" April 27, 1906; " 12 " " " " " 22.	"	12	"	"	"	"	"	"	22.
" April 28, 1907; " 14 " " " " " 29.	"	14	"	"	"	"	"	"	29.
" April 25, 1908; " 11 " " " " " 27.	"	11	"	"	"	"	"	"	27.
" April 16, 1909; " 13 " " " " " 22.	"	13	"	"	"	"	"	"	22.

Supposing the period of incubation for eggs of *Gallinula* to be 21 days, the same as that of the common hen, and giving 15 days incubation to all of these sets, we find that the first clutch was completed on May 16, the second on the 7th, the third on the 14th, the fourth on the 12th, and the fifth on the 6th. Reasoning that the eggs were laid in regular sequence, for the Gallinule lays daily, we can find the minimum time of the nest completion by subtracting the number of eggs in a set; *e. g.*, the first nest was completed on May 4, the second on April 25, the third on May 1, the fourth on May 1, and the fifth on April 24. These suppositions will serve to show that the Gallinule is an early nester, taking into consideration the time of its arrival, and that it loses no time in mating. It is a prolific layer too, for I robbed one pair three times in 1908, just to ascertain how often they would lay; on May 27, June 12, and July 10. I took from their nest nine, nine, and *eighteen* eggs, respectively, and have no doubt but that they had another set laid before August.

This pair occupied a small part of the marsh lying between one of the streets and an extension of the dump, so there can be no doubt

that the three sets were the product of the one pair, as no others were ever seen in it. The similarity of the eggs of the three sets in shape, size and coloration precluded any probability of their being the product of any other than the same female. The large set contained two eggs of abnormal size, and in incubation the clutch varied from fresh to pipped, the majority of them being over half incubated; two were rotten.

The following table will show how the Gallinule has held its own in such a frequented locality, despite gunners and nest robbers:—

1904, 1 or more pairs. (None were seen in the marsh in 1903.)

1905, 5 pairs, perhaps 6.

1906, 5 or 6 pairs. This year the marsh was not thoroughly explored.

1907, 9 pairs; one pair at Aramingo, a locality a mile north of this place.

1908, 9 or 10 pairs; one pair at Aramingo.

1909, 10 pairs; one pair at Frankford and another at Bridesburg. The former locality is a half mile above Aramingo, and these birds deserted it early in June, when boys despoiled their nest and the drought dried up the marsh, for the Aramingo marsh where they successfully raised a family. Bridesburg is two miles above Port Richmond on the Delaware River. The other two localities are upon the Frankford Creek, a tide-water tributary of the Delaware.

It will be seen that in four or five years the Florida Gallinule has more than doubled its numbers in this restricted area in spite of the decreasing size of the marsh, and it also is beginning to spread out in this vicinity. This is a good sign and insures the bird as a permanent summer resident when this marsh is filled in, as it will be in a few years, as the work of filling is steadily continued. I have never seen the Florida Gallinule in this vicinity at any other locality than those already cited, but Mr. Richard C. Harlow has observed it at Tinicum, Delaware County, Pa., in summer, and one was shot in October, 1907, in Camden, N. J. Both of these localities are along the Delaware River and contain good breeding grounds for the Gallinule, as I have ascertained in winter, and hope some day to confirm my suspicions by finding them there in summer.

The Florida Gallinule departs in October, and by November they are usually all gone; my latest record is November 16, 1909.

BIRDS OBSERVED IN SASKATCHEWAN DURING THE
SUMMER OF 1909.

BY JOHN F. FERRY.

Plates X-XII.

THE following notes were made at two principal points in Saskatchewan, Prince Albert and Quill Lake, from May 20 to August 11, with an interruption from July 16 to 30.

The time spent at Prince Albert extended from May 26 to June 7; at Quill Lake, from June 9 to August 11, with the interruption from July 16 to 30 as above noted. Scattering observations were made at other localities as subsequently noted.

Prince Albert is slightly south of the center of the Province of Saskatchewan, while Quill Lake is 98 miles to the southeastward on the Canadian Northern Railroad.

Prince Albert, except near the Saskatchewan River, is situated in a slightly rolling semi-prairie country, containing many ponds and sloughs, and scattered thickets of poplar abound. It is a picturesque region and is thronged with breeding ducks. An interesting muskeg country lies to the south, but unfortunately we were not able to visit it. We located at a comfortable farm house about eight miles southeast of the town.

Quill Lake is surrounded by unbroken prairie. Poplar thickets or "bluffs" as they are locally termed, are a characteristic feature of the landscape. Toward the southern end of the lake they almost entirely disappear, while around the northern edge, they run together to such an extent that the term continuous woodland might be used to describe a large portion of the area they cover. Quill Lake actually consists of three portions, locally known as Big Quill, Middle Quill, and Little Quill. Big Quill is about eighteen miles long and five to thirteen miles wide; Middle Quill is four miles long by two wide; while Little Quill is fifteen miles long by seven wide. The northern and eastern sides of Big Quill are very shallow and the bottom is muddy. Boating is impossible in such places, and the investigator must rely on his waders. Big Quill is dotted

with many islands, mostly near shore, and this is true to a lesser extent of the other lakes. Most of the islands are low mud flats with scanty vegetation. Muddy bottoms usually surround them for a long distance. Much of the shore line, however, is gravelly and sandy, and occasional large boulders attest the glacial formation of the country. The waters of the lakes are strongly alkaline. Along the southeastern side of Big Quill, the country is broken by ravines leading to the lake. They usually drain adjacent ponds, which are favorite nesting grounds for ducks.

The Field Museum of Natural History of Chicago carried on field work in the above region during the time stated, but others joined the party from time to time. Chief of these was Mr. R. M. Barnes of Lacon, Ills., who came to make acquisitions to his fine collection of North American birds eggs. Besides being successful himself, he gave much assistance to his associates. Mr. F. F. Ferry joined the party on July 1, entering into the arduous routine of field-work enthusiastically, and in this manner spending his vacation. L. L. Pray of the Museum staff worked in the capacity of artist and taxidermist during the latter part of the field operations. John S. Charleson of Shoal Lake, Manitoba, an able taxidermist and collector, was employed for the work at Prince Albert. Recognition is also due Herbert C. Clark of Quill Lake, who acted as teamster, guide and general helper in a most efficient manner.

The following list is far from complete, as scientific investigation was not the main object of this work. Mr. Barnes took full notes and shot the parent bird for identification in most cases when he took a set of eggs. Excerpts from these notes are included herein and credited to Mr. Barnes.

List of Species.

1. *Aechmophorus occidentalis*. WESTERN GREBE.—This species was first seen in Little Quill on July 3. Several adults were met July 4 with their broods, usually three in number. The young were still in the down, and could not have been more than a few days old. They uttered a soft, whistling peep, when the parent bird left them to seek her own safety. On June 10 two nests of a large Grebe, each containing three eggs, were found. They probably belonged to the Western Grebe. These nests were destroyed later by a heavy gale on the lake.

2. **Colymbus auritus.** HORNED GREBE.—This species was abundant in the vicinity of Prince Albert. Its nests were frequently found. At Quill Lake it was much rarer, probably due to the fact that rushes and other high aquatic vegetation does not grow in any abundance about the Quill Lakes owing to the alkaline waters. A careful investigation of neighboring sloughs and ponds might show the bird much commoner than we found it. Dates of nests: May 30–31, fresh egg; June 1–5, fresh eggs; June 5–9, fresh eggs.

3. **Podilymbus podiceps.** PIED-BILLED GREBE.—Several seen at Prince Albert. One female was found dead on a nest containing two fresh eggs. Not positively identified at Quill Lake.

4. **Gavia immer.** LOON.—A fine pair of Loons was taken at Shoal Lake, Manitoba, on May 20. A single bird was seen on Big Quill on July 5.

5. **Larus delawarensis.** RING-BILLED GULL.—“This species we found abundant at Big Quill Lake, where two nests were found with fresh eggs, June 11, on an island well out in the lake. It nests in colonies on the small, flat, sandy, grass-covered islands lying near the lake shore. June 16, two such islands were visited, the first of which lay about three hundred yards off shore, about a mile from the creek connecting Big Quill with Middle Quill Lake. This island was somewhat crescent-shaped, nearly 100 yards long, and 20 yards wide at the widest part. It was a mere sand strip, and had grass grown over the middle of the widest part of the island. Here, usually in the grass, but some out on the open sand, were 157 nests of this species all containing eggs, mostly just on the point of hatching. One hundred and seventeen nests had three, twenty-two nests had two, eleven nests had one, six nests had four, and one nest had five eggs.

“A visit to this island a few days later found it literally overrun with young gulls. The nests in most cases were piles a few inches high of floating water-weed, found in the lake. Frequently they were quite well made, with a rude cup-shaped top, and sometimes were a depression tramped down in the grass, lined with a few of the same weeds, and sometimes only a slight depression scratched in the sand, around which a few of the weeds had been gathered.

“The old birds were very fearless in defense of their young and eggs, swooping and screaming around in close proximity to one’s head, and, owing to the very large number of them, keeping up a deafening din.

“Within 500 feet of the above island, and slightly nearer shore, lay another triangular-shaped island, similar, but about 400 feet by 200 feet, slightly higher and having two separate grass plots, and a large patch of wild nettles upon it. Here we found a motley assembly of water birds breeding. The Ring-billed Gull predominated with 158 nests. They surrounded entirely a rookery of fifty-two nests of the Double-crested Cormorant, whose nests the gulls robbed daily to such an extent that but one cormorant egg was secured by us here. The nests and the ground adjacent were strewn with the shells of cormorant eggs. In another part of this island was a Common Tern colony occupying a narrow strip of grass-

covered sand apart from the main colony of gulls. We saw no signs of the gulls having molested the terns.

"The following duck's nests were found upon this island: Pintail, two nests; one each of Blue-winged Teal, Baldpate, Canvas-back, and two of the Lesser Scaup Duck. Five of these nests were destroyed by the gulls. There was also a Canada Goose nest at the edge of the gull colony. Two gulls had built their nests upon its very edge. The goose nest contained six eggs on the point of hatching.

"When I lay quietly for a few moments during a shower, the gulls would settle all around me on their eggs to protect them from the rain. Some sat within twenty feet of me, apparently unconcerned, eyeing me curiously. Suddenly they all would spring into the air almost simultaneously and renew their screeching and swooping at me, and so far as I could see, without cause. I had not moved a muscle. I noticed these flights into the air usually occurred during a lull in the storm, when the rain was not falling so heavily. The young are pretty little creatures with thick, soft downy bodies, and legs far back. They run about as soon as dry from the egg shell, and hide in the grass or toddle over the beach in a ludicrous fashion. Their bills and feet are a beautiful delicate pink; eyes black, and their downy coat appears of two different shades, a grayish and a brownish color. Why this difference in color we could not determine, as young of both colors were found in the same nest. At other times all three young in a nest would be of the same color. The little fellows were fearless swimmers and would boldly strike out in the rough sea of the lake. They were more or less speckled with small, brownish black round spots." (Barnes.)

6. *Larus franklini*. FRANKLIN'S GULL.—This species was observed flying overhead at Prince Albert and was abundant during our stay at Quill Lake. They were often observed flying low over the prairies catching insects. An examination of three stomachs resulted as follows:

No. 1. Mass of digested matter among which was found remains of numerous midges (very little gravel).

No. 2. Mass of more or less well digested Acrididæ; also twelve Acrididæ but little digested, as were also one spider, one small mole cricket, one dragon-fly and immature Acrids and one nearly perfect water beetle.

No. 3. A moderate quantity of well-digested food which seemed made up of particles of Acrididæ, and of which eighteen are still recognizable.

No. 4. Very little well digested food; four large dragon-flies and six Acrididæ. (Above determinations by Walcott.)

Though the birds were so common, we could not locate their nesting site. However, Mr. Barnes's notes read as follows: "On the island containing the Ring-billed Gull colony visited June 16, I found a gull's nest among the Ring-billed Gulls' nests, but smaller. This nest contained three fresh eggs about two-thirds the size of the Ring-billed Gull's eggs. They are not like Ring-billed Gull eggs. Franklin's Gull was the only other gull about Quill Lake. I am convinced that these eggs belong to this species."

A great flock of Franklin's Gulls was observed on a strip of land between Middle and Little Quill Lakes on July 4.

7. **Sterna hirundo.** COMMON TERN.—These birds were abundant breeders about Quill Lake. Many nesting colonies were found on islands in the lake. "The nests were nearly all on the grass-covered parts of these islands, though some were located out in the sand or gravel. They were usually only a slight pile of grass-like weed found growing in the lake, sometimes but a mere depression made in the grass or sand. Once in a while there was quite a pretentious effort at nest-building out of this same weed, with a well-defined cup to hold the eggs. There were ninety-eight nests in a colony visited June 11. The eggs numbered two and three in a nest in about the proportion of two nests with two to three nests with three. One nest on this island contained four eggs. They all were about one-half incubated. One sky-blue egg was found.

"While visiting this colony at a later day, a heavy protracted rain occurred. Nearly all the terns returned to their eggs, though the writer lay on the ground within twenty-five feet of the nearest of them. It was a matter of interest to note their manner of alighting on the nest. They approached it with the usual airy tern-like flight, hovering some twenty feet above for a moment or two. With a sudden downward plunge, they stopped a foot or so above the eggs, fluttering for an instant. Finally they settled gracefully upon the nest, each bird facing the storm." (Barnes.)

On June 14, another colony on an island was visited. There were 147 nests, about four-fifths of which contained three eggs each. On June 16 another colony containing thirty-eight nests was found, and subsequently four other colonies were discovered. Nests containing highly incubated eggs were found on July 4, and many young had been killed by heavy rains. Among these gull and tern colonies, it was the rule to find several duck nests, and frequently one of the Canada Goose.

8. **Hydrochelidon nigra surinamensis.** BLACK TERN.—These birds were only occasionally seen at Quill Lake, passing over in twos and threes. On June 29, a flock of fifteen or twenty was seen hovering about the mouth of Pill Creek, a small stream entering Big Quill at its northwest end. Five days of almost continuous rain had preceded, and we inferred that the terns' nesting site in some other locality had been destroyed.

9. **Phalacrocorax auritus.** DOUBLE-CRESTED CORMORANT.—These birds were common at Quill Lake, but very wary. A nesting site of these birds was found in a colony of Ring-billed Gulls, as previously referred to. As the gulls destroyed the eggs of the cormorants in this case, it seemed improbable that the cormorants had made no effort to nest elsewhere. The location of another such site was long a mystery, and was only cleared up on July 5, when we found some fifty nests of the cormorant on a rocky island near the southern end of Big Quill. Nearby were broken eggs and recently abandoned nests of the White Pelican. The cormorant nests contained mostly three eggs each; a few were fresh, but the greater part highly incubated. There were a few nests containing young recently

hatched, and others with young a few days old. This colony, however, was insignificant when compared with one we found on July 9, about one and a half miles from the former. It was on an island chosen by the White Pelicans for their breeding ground. Here were between 200 and 300 young cormorants in the down averaging about one third grown; though there were some young but a few days old, and others about one-half grown. Some nests contained highly incubated and addled eggs. The nests were scattered about on the island in groups, numbering from twelve to thirty-five or forty nests. The young when able to hobble away from their own nests would gather in little companies nearby. A neighboring nest was usually occupied by as many birds as it would hold, the others huddling together around it. The young birds uttered a note like a crying baby, but shriller and harsher. They showed no fear of man, and while one observer was preparing his camera, one young bird pecked at his coat sleeve, mistaking the man for his parent. The young appeared to be fed upon minnows, which they would sometimes disgorge in a semi-digested state when alarmed. The parent birds left long before our canoe reached the island and did not return. Occasionally, however, solitary birds would fly by overhead. The nests of the cormorants were made of sticks and dry weed stalks, woven together with varying degrees of skill; sometimes the nest was almost as well built as that of a Red-tailed Hawk; at others it had fallen apart before the eggs were hatched.

The adult birds were not often seen in the fully adult plumage. Usually there was a considerable intermixing of white. None of the adults shot had the long crests behind each eye.

10. *Pelecanus erythrorhynchos*. WHITE PELICAN.—The most notable discovery of our trip was a nesting colony of this species. From our arrival we had hunted continually for the birds' breeding grounds, for they were abundant about the lakes. The nesting site was at last found, July 10, on an island at the extreme southern end of the lake. As we approached the island from a distance, an impressive sight was presented to us. A great bank of snow seemed to be looming above the water. When we were about five hundred yards distant, the birds began to take wing, executing that stately flight for which they are noted. Soon the space above the island was filled with several hundred great white birds, while in every direction small flocks were flying away in single file. This was a striking enough spectacle, but a still more interesting sight was the hundreds of white downy young that gathered together in several great herds about the island. Sprinkled among them were little groups of young cormorants. When the young pelicans were approached they uttered a groaning, grunting noise and herded together in the most ludicrous confusion. Scrambling and stumbling, they slowly moved away from the intruder, bearing all before them — patches of rank weeds, cormorant nests and the helpless young of both pelicans and cormorants. Sometimes they disgorged the contents of their pouches, usually a mass of salamanders (*Necturus maculatus*), though occasionally a "jock-fish"



YOUNG WHITE PELICANS. QUILL LAKE, SASKATCHEWAN.

(one of them was about a foot long) and some brook sticklebacks (*Eucolia inconstans*). A number of pelican eggs lay strewn about, and occasionally a nest contained two or three addled eggs. Even while we looked on, some Ring-billed Gulls attacked these eggs, breaking them sufficiently to let out the contents.

The nests of the pelicans were low mounds of sand, mixed with gravel and mud. The dimensions of two nests, in inches, were as follows:

Diam. at base.	Diam. at top.	Height outside.	Inside depth.
24	12	2½	2 (about)
20	9	3	2¼

Usually there was some loose aquatic weed lying about the rim of the nest. The nests were frequently placed side by side, but sometimes three or more feet apart. They were in groups of from twelve to twenty. Often a single cormorant nest was placed among those of the pelicans.

One pelican nest contained a young bird just hatched, and two eggs. The young bird, which made a noise like a young puppy, was of an orange flesh color. The young, when about the size of a hen, have the eyes slaty brown, bills light bluish gray, feet livid flesh color. The iris of the adult is a light bluish gray. Inside the pouches of both old and young birds were clusters of parasites — beetle-like insects with bodies striped with black and white.

The young pelicans when acting in concert made a noise like the distant honking of Canada Geese.

This colony was under observation from July 10 to 13, when the above notes were taken. Later it was visited daily from August 1 to 8. During the interval of our absence, the appearance of the island had greatly changed. The young of both cormorants and pelicans had left the nests and were able to leave the island by swimming. In one or two great bodies, they would swim out from shore, and remain a distance from the shore while we were on the island. Their location would vary according to the amount of moving about we did while on the island. When we remained in one spot the flocks of young birds would slowly move towards the island and eventually gather in a compact body on the shore. While we were moving about photographing or collecting material, the flock would remain strung out about one hundred and fifty yards or more from shore. The old birds would gather about a quarter of a mile distant on the shore of the mainland, or in a long line would remain at rest upon the water, three to four hundred yards away. They made a beautiful sight, looking like a fleet of white battle-ships. The spectacle which eclipsed all others in interest was when the young and old gathered upon the island. Then took place all the varied events of their unmolested domestic life. When the observer lay concealed in high rank weeds, the young birds would soon return, and the old birds in the course of an hour. The adults would alight among the young with a swish or swoop, and usually would single out their own young and begin feeding it. The process was very grotesque. The old bird would lower its head, open wide its bill,

and immediately the head and neck of the young would disappear into the parent's capacious pouch and gullet. With such energy would the young bird do its work that the parent was sometimes almost pushed off its feet. Often the two birds would struggle back and forth in a manner suggestive of a strenuous contest. The young birds, after being fed, would settle down and apparently go to sleep. The old birds would stand about preening, gaping, occasionally charging at an old or young bird which they regarded as an intruder.

Few of the old birds still retained the odd excrescence on the bill at the time of our first visit, and during our second visit, a bird thus ornamented was seldom seen. None of the adult birds we took had any pink lustre to the plumage, except sometimes at the tip of the tail, on its under side. The full-grown birds varied considerably in size.

The feeding grounds of the adults was a matter of much speculation on our part. The waters of Quill Lake are strongly alkaline, and it is doubtful if any fish live there, except possibly in and at the mouths of creeks entering the lake. Yet fish undoubtedly formed a part of the bird's diet, as we found several disgorged by the young birds, some of considerable size. We suspected that the birds had some distant feeding ground, and color was lent to this theory by the behavior of the birds each evening. Between five and seven flocks of from six to twenty-five individuals flew in a south-west direction over the prairie. This direction would lead them to the region of Lost Mountain Lake, some thirty-six miles distant, and possibly to some intervening lakes and creeks. Our brief and much localized observations could not settle such a matter definitely, however.

The number of the adult or young pelicans could not be told with certainty, but we estimated the number of the young birds to be between 750 and 1000. A photograph of a single group of young shows 250 birds. And this group could not have represented more than one-third of the total number of young. There must have been between 300 and 500 old birds.

The mortality among the young was considerable. Their dead bodies lay strewn about all over the island, which was about an acre in extent and perfectly flat. There were also colonies of the Ring-billed Gull and Common Tern on this island.

11. **Lophodytes cucullatus.** HOODED MERGANSER.—Three of these birds were seen on Middle Quill on June 23. They alighted close to an island where we lay concealed. One was shot but not recovered. They were all either females or immature males. On July 10, at the southern end of Quill Lake, two broods of four or five were seen. They were about two-thirds the size of the adult.

12. **Anas platyrhynchos.** MALLARD.—A common breeder at Prince Albert, and to a less extent at Quill Lake. Near the latter place, it probably would have been found much commoner in neighboring sloughs and ponds. It is locally known as "stock duck." Nests containing fresh eggs were found at Prince Albert on May 29 and June 1. The former contained eight fresh eggs; the latter nine fresh eggs.

13. **Chaulelasmus streperus.** GADWALL.—Common at Prince Albert; abundant at Quill Lake; probably the most abundant duck in the latter vicinity. Many nests were found. They were situated practically always upon islands in the long grass or among the weed stalks growing there. Often the nests were in patches of dead weeds; they were made exclusively of the finer weed stalks and the dead, cottony flowers. Only occasionally were some of the bird's own feathers used. This species often nested in close proximity to nests of the Baldpate and Pintail. The eggs of the Baldpate and Gadwall closely resemble each other. In two cases eggs of the Lesser Scaup Duck were found in Gadwall's nests. This species is a late nester, fresh eggs being first found in complete sets on June 24. A nest with young just pipping the shell was found on July 31. Many broods were seen in sloughs up to August 9. A nest with seven fresh eggs was found on July 4.

14. **Mareca americana.** BALDPATE.—Not common at Prince Albert. Abundant at Quill Lake. In nesting habits much like the Gadwall, though the Baldpate nests earlier. The first complete sets were found on June 12; the number of eggs laid ranged from nine to twelve. On July 5 a brood of three, a little smaller than Teal, were seen in company of the female parent.

15. **Nettion carolinensis.** GREEN-WINGED TEAL.—Not common at Prince Albert or Quill Lake. A nest containing nine fresh eggs was found at Prince Albert on June 3.

16. **Querquedula discors.** BLUE-WINGED TEAL.—This was one of the most abundant ducks at Prince Albert, but was not nearly so common at Quill Lake. Three nests were found at Prince Albert; May 31, with five fresh eggs, and June 7, are two of the dates.

At Quill Lake a nest was found on June 16 containing four fresh eggs. Later they were destroyed by the gulls.

17. **Spatula clypeata.** SHOVELLER.—This duck was abundant all through the portion of Saskatchewan which we travelled. The nests were next to impossible to find and we discovered but one. Mr. Barnes's notes read as follows: "June 20, in the midst of a tremendous rain storm, I stumbled upon a nest of this species built on the ground at the forks of a fallen and nearly limbless tree overgrown with brush. The bird flushed under my feet so close that her wings struck me as she rose. The nest was of grass and contained very little down. The eggs were fresh."

18. **Dafila acuta.** PINTAIL.—We were successful in finding many nests of this duck. It was abundant at both localities visited. The birds nest in the long prairie grass, or at the edge of willow thickets, usually close to water. At Quill Lake they showed a decided preference for islands as nesting sites. They are generous in the supply of down used to line their nests. Nests were found at Prince Albert as follows: May 25, three nests; May 26, nine eggs, one-third incubated; May 27, three eggs, one-half incubated; June 1, twelve eggs, two-thirds incubated. At Quill Lake, June 16, nine fresh eggs.

On June 11 flocks of males were frequently seen, only occasionally a female being among them. A brood of eight young, just hatched, was found on June 17.

19. *Marila americana*. RED-HEAD.—“Uncommon. One pair in a slough at Prince Albert where they were undoubtedly nesting on June 6.” (Barnes.)

20. *Marila vallisineria*. CANVAS-BACK.—Common in both localities. Two nests at Prince Albert, one on May 30, in base of willow-bush standing in water with seven eggs, one-third incubated; the other in a tussock of dead grass in a small slough with six eggs, one-third incubated, June 5.

At Quill Lake nests were found from June 14 to June 21 with fresh eggs. One nest was in tall bulrushes growing out of a small creek; one in a bunch of dead bulrushes, standing in a very conspicuous position. The third nest was in low grass on a flat, sandy island. Very little down was found in these nests. The birds as a rule appeared tame and flushed almost under one's feet. Flocks of male birds were seen at about the time the females appeared with their broods (July 1). Several broods were seen on June 29.

21. *Marila affinis*. LESSER SCAUP.—Common at both localities. A nest containing ten fresh eggs was found at Prince Albert on June 2. It was in long, dry sedge grass at the edge of a pond. At Quill Lake they nested commonly on low flat grassy islands. The Lesser Scaup nests “were the flimsiest in construction of all the ducks' nests found, being uniformly a mere depression in a small bunch of grass, and seldom having much of any down in them” (Barnes). On July 4 the adult birds, mostly males, were seen in an immense flock on the north shore of Middle Quill. Large flocks were seen in various parts of the lake from this time on. On June 29 a brood of this species was seen and several broods of Canvas-back and Widgeon. It appeared to be the date when many ducks brought out their broods. A nest with ten eggs was found on July 4.

22. *Clangula clangula americana*. GOLDEN-EYE.—Golden-eyes, presumably this species, were seen at Quill Lake on June 7, on July 3 and 4, flocks of ten, three, two, and two Golden-eyes were seen. On July 10, one was seen.

23. *Charitonetta albeola*. BUFFLE-HEAD.—Small flocks of this species were seen frequently during our stay. They were commonest about the rocky and gravelly shores of Little Quill Lake. The flocks were composed mostly of males. We believed the species to be nesting in the vicinity.

24. *Oidemia deglandi*. WHITE-WINGED SCOTER.—Small flocks seen occasionally; commonest in Little Quill Lake.

25. *Erismatura jamaicensis*. RUDDY DUCK.—Plentiful about Prince Albert, where it was either breeding or preparing to breed, as the birds were almost universally in pairs.

26. *Branta canadensis*. CANADA GOOSE.—“This bird we found numerous on Quill Lake. Seven different nests were found on small grassy islands along the north and east shore, each containing from five to seven



1. NEST OF CANADA GOOSE. QUILL LAKE, SASKATCHEWAN.



2. NEST OF MALLARD. QUILL LAKE, SASKATCHEWAN.

eggs. All were much incubated, and one set of five eggs hatched June 12. A strange thing was that we saw no young geese except the brood which we found before they had left the nest. Several times large flocks containing from ten to thirty-five birds were seen.

"All of the nests were merely piles of dead grass placed usually near the ends of the islands. On the grass there was a depression in the top lined with down from the goose. One nest was on the very edge of a Ring-billed Gull colony, against the base of which two different gulls had constructed their nests." (Barnes.)

On June 17 a nest was found containing seven eggs. The female flew when Mr. Barnes was about seventy-five yards distant, uttering deep melancholy honks. On hearing them the male goose joined her and together, a short distance out in the lake, they kept up an anxious honking.

A nest was found on July 11 from which the bird was flushed. An odd looking egg was all that was in the nest. It looked like an egg of the Canvas-back, but it may have been a runt goose egg badly nest stained. A set of six highly incubated eggs were given to a farmer to place under a hen. They all hatched. The hen cared for them for about two weeks when a tame goose was substituted. In September a letter informed us that the whole brood was as large as adults and had once taken wing and flown to the lake. They were easily recaptured. On June 16 Canada Geese were seen flying over the lake in groups of two, eight and three; on June 17 flocks of twenty and ten, and several of two and three.

27. *Botaurus lentiginosus*. BITTERN.—"But one specimen seen at Quill Lake." (Barnes.) July 5 another was seen on the south shore. The bird was common about Prince Albert.

28. *Grus americana*. WHOOPING CRANE.—"June 14 we saw a splendid specimen of this species standing on the wide muddy flat at the north end of Big Quill Lake. We examined it carefully with our glasses, and endeavored to stalk it. This was the only specimen seen. Our assistant, who lives on the shore of the lake, told us he had killed an adult specimen of this species some fifty miles north of Quill Lake during the present spring. His younger brother, a lad of fifteen, told us that a pair of birds had been seen along the east side of Big Quill Lake nearly all the spring." (Barnes.)

29. *Grus mexicana*. SANDHILL CRANE.—"Not a common bird, though at least one pair nested near Big Quill Lake. A nest was found on June 20 in the swamp where the water was from eight to ten inches deep, and through which had grown large swamp grass to the height of a man's shoulder. Among this a nest was built which appeared very much like the upper third of an ordinary hay cock, with a depression at the top. One egg, apparently about one-third to one-half incubated, with the side torn out (probably by some animal), was found on the edge of the nest. The birds were seen at the time the nest was discovered within a few yards of the nest." (Barnes.)

About August 1 the birds were common. We saw as many as six to-

gether. A local report, in which they were referred to as "turkeys," describes them as abundant during the fall near the southern shore of Big Quill Lake.

30. *Porzana carolina*. SORA RAIL.—Probably common but rarely seen. A nest was found at Prince Albert containing eggs. Another at Big Quill Lake, on June 12, with eleven fresh eggs. The latter was built in the rushes by a creek, and was about a foot above the water, well made and well hidden. We found another nest containing twelve eggs.

31. *Coturnicops noveboracensis*. YELLOW RAIL.—"June 21, immediately following a heavy rain which flooded nearly the whole country, a single specimen of this rare bird was flushed from under our horses' feet as we crossed a swampy piece of flooded territory where the water was a few inches deep and the grass very sparse. Having no gun, we could not secure it." (Barnes.)

On July 14, at about sunset, a bird was flushed which could have been only a Yellow Rail. It flushed but a few feet from the observer. Its underparts were plainly seen, and its flight was rapid but distinctly rail like. It was near the locality of the first mentioned bird and in a similar situation.

32. *Fulica americana*. COOT.—Abundant at Prince Albert where many nests were found. None were seen at Quill Lake, probably because of the strong alkali water of the lake.

33. *Steganopus tricolor*. WILSON'S PHALAROPE.—Common about Quill Lake and evidently breeding, but we found no nests. Dissection of several specimens showed partially developed eggs in the bird, one on June 17 with a small yolk. One bird we were unable to drive from a spot in a partially overflowed slough. She flew about us uttering plaintive cries. When flushed the birds utter a peculiar grunting noise.

34. *Recurvirostra americana*. AVOCET.—One seen July 4 in Middle Quill Lake.

35. *Gallinago delicata*. WILSON'S SNIPE.—Seen only on August 10 in a mud hole north of Big Quill, probably migrating.

36. *Micropalama himantopus*. STILT SANDPIPER.—Two were shot at Quill Lake on July 20; they were the only ones seen, and are a male and female in summer plumage.

37. *Pisobia fuscicollis*. WHITE-RUMPED SANDPIPER.—On our arrival at Quill Lake, June 10, we saw large flocks of sandpipers about the shores and on the islands of the lake. A few days later these flocks disappeared. Several random shots brought down specimens of this species and the following.

38. *Pisobia bairdi*. BAIRD'S SANDPIPER.—The remarks under the preceding species apply also to this species. In a pair taken on June 16 the testes of the male were small and the ovaries of the female inactive.

39. *Ereunetes pusillus*. SEMIPALMATED SANDPIPER.—Flocks of small sandpipers were common on June 11; not again seen until July 3 when a flock of fifteen were noted. On July 4 four were seen, and on this date



1. NEST OF LONG-BILLED CURLEW. QUILL LAKE, SASKATCHEWAN.



2. NESTS OF COMMON TERN. QUILL LAKE, SASKATCHEWAN.

another flock of twelve. All the specimens collected proved to be this species, and hence others seen are referred to it. A female taken on June 16 had ovaries showing recent activity.

40. *Calidris leucophæa*. SANDERLING.—These birds were found tolerably common at Quill Lake on our arrival June 10, but they disappeared a few days later.

41. *Totanus flavipes*. LESSER YELLOW-LEGS.—Three were seen on July 5.

42. *Helodromas solitarius*. SOLITARY SANDPIPER.—One seen on July 5 at Quill Lake. "One seen in the muskeg south of Prince Albert from the railroad train June 5." (Barnes.)

43. *Catoptrophorus semipalmatus inornatus*. WESTERN WILLET.—This species was common at Quill Lake and exceedingly noisy. Without doubt it was breeding, but continuous search failed to find any nests. The tails of several species show quite a distinct barring although in size and coloration they are typically Western Willets. On the 10th of July a Willet was seen sitting upon the water like a Phalarope and was put to flight by our canoe.

44. *Bartramia longicauda*. UPLAND PLOVER.—This species we found at Prince Albert and at Quill Lake but it was not common at either place.

45. *Actitis macularia*. SPOTTED SANDPIPER.—Two were seen July 4 at Quill Lake.

46. *Numenius americanus*. LONG-BILLED CURLEW.—Abundant at Quill Lake, where their loud protesting cries were constantly in our ears. Though there must have been many nests in the vicinity, we could find but one. This was taken June 17, and contained but two eggs, highly incubated. The nest was thinly lined with grass and situated on a piece of burnt-over prairie adjoining the lake. It lay among some bunches of willows, bleached, fire scarred, and scattered about. "The female on the nest stretched herself flat on the ground as we approached, her long neck extending in front of her like a brown stick. She seldom flushed till we were very close upon her." (Barnes.) Young just able to fly were found on July 5, and young two-thirds grown on July 9. Our assistant at Quill Lake wrote us that all the Curlew left the lake about the time of our departure, August 11, and that he had seen none there since.

47. *Oxyechus vociferus*. KILLDEER.—Common at Prince Albert. Less so at Quill Lake. A nest containing four eggs, about one-fourth incubated, was found at the former place May 22.

48. *Ægialitis semipalmata*. SEMIPALMATED PLOVER.—"This species was seen in considerable numbers for the first few days after our arrival. Shortly afterward they disappeared entirely." (Barnes.)

49. *Ægialitis meloda*. PIPING PLOVER.—Common at Quill Lake. A nest containing four eggs was found on an island on July 4. Subsequently the species was found distributed along the south shore of Quill Lake in the proportion of about one pair of birds to the mile. At this time, July 4-5, nearly every pair had broods of young, varying in size from birds

just hatched to those the size of a sparrow. On June 14 Mr. Barnes saw a pair on an island acting as if they were nesting. A female taken on June 24 had ovaries apparently approaching activity. It was fat and moulting.

50. *Arenaria interpres morinella?* RUDDY TURNSTONE.—A Turnstone was seen in the Pelican colony island about August 7. It doubtfully is referred to this subspecies.

51. *Bonasa umbellus umbelloides*. GRAY RUFFED GROUSE.—A specimen of this race was taken on May 26 at Prince Albert, drumming upon a log. It was common in that locality, but was not seen at Quill Lake. The tarsus is unusually heavily-feathered.

52. *Tympanuchus americanus*. PRAIRIE CHICKEN.—This species and the Prairie Sharp-tailed Grouse occurred in about equal numbers at Quill Lake, though they were widely scattered. Two broods were discovered, one on July 4 just able to fly, one of which was preserved as a specimen; the other on July 14. The young of this latter brood were about the size of Quail, and were dusting themselves in the road.

53. *Pediocetes phasianellus campestris*. PRAIRIE SHARP-TAILED GROUSE.—Common at Prince Albert, less so at Quill Lake where it was very much scattered.

54. *Zenaidura macroura carolinensis*. MOURNING DOVE.—Rare at Quill Lake. Seen on July 3, 9, and 14, and on August 9.

55. *Circus hudsonius*. MARSH HAWK.—Seen throughout the territory visited but nowhere abundant.

56. *Buteo borealis calurus*. WESTERN RED-TAILED HAWK.—Common at Prince Albert and less so at Quill Lake. A nest containing three eggs, one-half incubated, was found on June 1. The female parent, an immature bird, was taken. The nest was about twenty-five feet up in a poplar tree standing in a thicket. Mr. Barnes took a set of two eggs on June 7; one egg was on the point of hatching and the other was addled.

57. *Buteo swainsoni*. SWAINSON'S HAWK.—"This species was found common at all places where we stopped. At Quill Lake it was especially plentiful and numbers of nests were found, invariably containing two eggs. June 13 and 14 nests were taken. They were all similarly located, being from six to ten feet up in small bunches of willows or other small growth, scattered in copses over the prairie. The eggs were about half incubated." (Barnes.)

58. *Archibuteo lagopus sancti-johannis*. ROUGH-LEGGED HAWK.—"One bird of this species was seen on June 5, fourteen miles southeast of Prince Albert." (Barnes.)

59. *Falco sparverius*. SPARROW HAWK.—One seen on June 27.

60. *Asio wilsonianus*. LONG-EARED OWL.—A nest of this species with the parent bird upon it was found at Prince Albert on May 29. The nest contained eggs.

61. *Asio flammeus*. SHORT-EARED OWL.—One was flushed from the grass near Quill Lake on June 10, the only one seen.

62. *Bubo virginianus subarcticus*. ARCTIC HORNED OWL.—An adult female of this species was taken at Prince Albert on June 5. The stomach contained the remains of a small mammal.

63. *Dryobates pubescens medianus*. DOWNY WOODPECKER.—Tolerably common about Prince Albert. A female was flushed from a hole in a dead poplar May 31. Above it, in the same tree, was found a hole containing a nest of the Tree Swallow.

64. *Sphyrapicus varius*. YELLOW-BELLIED SAPSUCKER.—Common about Prince Albert, where it was undoubtedly nesting.

65. *Colaptes auratus luteus*. NORTHERN FLICKER.—Common at all places visited.

66. *Colaptes cafer collaris*. RED-SHAFTED FLICKER.—Mr. Barnes believed this species to be equally common with the preceding species.

67. *Chordeiles virginianus henryi*. WESTERN NIGHTHAWK.—“This species was observed at both Quill Lake and Prince Albert.” (Barnes.)

68. *Tyrannus tyrannus*. KINGBIRD.—Common in all localities visited; especially so at Quill Lake. A nest was found in a low willow tree at latter place containing three newly hatched young July 14.

69. *Sayornis phoebe*. PHOEBE.—Common at Prince Albert; a beautiful nest of moss, containing fresh eggs, was found on the 26th of May, in a well.

70. *Empidonax minimus*. LEAST FLYCATCHER.—Quite common in poplar thickets or “bluffs” between Big and Little Quill Lakes.

71. *Otocoris alpestris leucolæma*. DESERT HORNED LARK.—Horned Larks were common in all places visited, and judging from the number seen from the train windows they were widely distributed throughout Saskatchewan. Two immature specimens were the only ones taken; they were useless for identification and the local birds are consequently referred to the above form, to which they theoretically belong.

72. *Corvus brachyrhynchos*. CROW.—Abundant at Prince Albert and Quill Lake. Very destructive to ducks’ nests. We found many of these nests in which the eggs were partly or wholly destroyed by crows. It was a common sight to see crows walking through and carefully exploring the grassy places where ducks were likely to nest. Many nests of the crow were found, usually placed six or seven feet from the ground in poplar thickets, each containing (June 12 to 17) four fresh eggs. One nest at Quill Lake was situated on the ground, at the forks of the dead branches of a fallen and nearly burned up weather-bleached poplar tree. This was on June 23, at which time the nest contained young with pin feathers.

73. *Dolichonyx oryzivorus*. BOBOLINK.—Common at Quill Lake, scattered over the prairie in small colonies or isolated pairs. One partly built nest was found June 24.

74. *Molothrus ater*. COWBIRD.—Exceedingly abundant. Eggs of this species were found in the nests of the following: Swamp Sparrow, Red-winged Blackbird, Western Savannah Sparrow, Clay-colored Sparrow, Leconte’s Sparrow. One Western Savannah’s Sparrow’s nest con-

tained four Cowbird's eggs and none of the rightful owner, all partly incubated

75. *Xanthocephalus xanthocephalus*. YELLOW-HEADED BLACKBIRD.—Abundant at Prince Albert but only locally common about Quill Lake. At the former place many nests with eggs were found. Numbers of nests with fresh eggs were found May 29.

76. *Agelaius phœniceus fortis*. THICK-BILLED REDWING.—Abundant throughout the territory visited. Many nests were found. Young just able to fly were common about June 29. Five males collected are by no means typical of the above race. When compared with sixteen specimens, mostly from the Atlantic States, the Saskatchewan birds were equal in size to eleven, while they were actually smaller than five of the eastern birds. Still the Saskatchewan birds average larger than typical *A. p. phœniceus*. The five Saskatchewan birds measure as follows: Wing, 121; tail, 95; culmen, 25. Unfortunately no females from Saskatchewan were collected.

77. *Sturnella neglecta*. WESTERN MEADOWLARK.—Common at all places visited. A nest found May 31 at Prince Albert contained six eggs one-fourth incubated, and a nest with fresh eggs was found June 12 at Quill Lake.

78. *Icterus galbula*. BALTIMORE ORIOLE.—Common at Prince Albert; less so at Quill Lake.

79. *Euphagus cyanocephalus*. BREWER'S BLACKBIRD.—Common throughout the territory visited. No nests were found. On July 3 the Brewer's Blackbirds had begun to flock, when a flock of fifty to seventy-five were observed. A few Red-wings were among them, but the Brewer's Blackbirds were often seen vigorously driving them from their midst.

80. *Quiscalus quiscula æneus*. BRONZED GRACKLE.—Tolerably common at both localities. Mr. Barnes took a nest with fresh eggs on June 9 at Saskatoon.

81. *Astragalinus tristis*. AMERICAN GOLDFINCH.—Tolerably common at Prince Albert. Seen at Quill Lake on June 24.

82. *Plectrophenax nivalis*. SNOW-BUNTING.—Seen quite frequently in ploughed fields along the Canadian Pacific Railway between Winnipeg and Regina on May 22. The birds were in the black and white breeding dress.

83. *Calcarius ornatus*. CHESTNUT-COLLARED LONGSPUR.—Abundant about prairies surrounding Regina and Quill Lake. "Several nests were found June 4 at Regina. All were situated on the ground at the foot of a small weed or bush, on the open prairie where the grass was short, and contained eggs well advanced in incubation. The nests were invariably found by watching the birds, which would fly back and forth in a semicircle as I stood still. Finally they would alight near the center of the semicircle almost opposite where I stood and creep through the grass stealthily and settle upon the nest." (Barnes.) A fledgling was seen on July 5.

84. *Rhynchophanes mccowni*. McCOWN'S LONGSPUR.—"I found McCown's Longspur plentiful at Regina where I took one nest June 4. It was located in a depression near the road on the open prairie where there was practically no grass. It had been run over by a wagon, crushing the nest out of shape. The bird, however, was on the nest and the eggs were uninjured." (Barnes.)

85. *Poœcetes gramineus confinis*. WESTERN VESPER SPARROW.—Plentiful at Prince Albert and Quill Lake.

86. *Passerculus savanna alaudinus*. WESTERN SAVANNAH SPARROW.—Common at Prince Albert. Abundant at Quill Lake, where it was nesting. Nests were usually sunk deep in the ground at the base of a bunch of grass on the prairie. The birds would seldom flush from the nest till nearly trodden upon. The eggs were usually four, occasionally five, and were fresh from June 10 to 20. On July 14 a nest with two eggs and one of the Cowbird found. Fledglings just able to fly were seen quite commonly on July 3. They were usually flushed from the grass.

87. *Passerherbulus lecontei*. LECONTE'S SPARROW.—This species was common in some localities about Prince Albert and was plentiful in the alkali grass along the edge of Quill Lake. One nest was found on June 22 with two sparrow eggs and one of the Cowbird. The parent bird was flushed from the nest. It was situated at the edge of a willow thicket under a flattened wisp of dead grass, through a minute hole in which the bird descended perpendicularly into the nest. The nest was found abandoned on June 29, one sparrow egg only remaining. On July 14 a Leconte's Sparrow was flushed from her nest in a reclining wisp of dried grass. The nest was entered by a small hole in the wisp above the nest. This habit of nesting in a bunch or tussock of dead grass, in which the entrance hole is a mere parting of the grasses, and very inconspicuous, seems characteristic of this species. The above nest contained four young with pinfeathers on the feather tracts.

88. *Passerherbulus nelsoni*. NELSON'S SPARROW.—One specimen taken on June 11.

89. *Zonotrichia albicollis*. WHITE-THROATED SPARROW.—Tolerably common at Prince Albert, its notes were several times heard at night coming from a poplar thicket.

90. *Spizella pallida*. CLAY-COLORED SPARROW.—Abundant at Prince Albert and Quill Lake, where it was one of the most characteristic birds of these regions. Its monotonous insect-like trill was heard from all sides on several mornings. The nests were usually placed in small wild rose bushes or tangled weeds on a sloping hillside, very close to the ground. They usually contained four eggs. Nests with fresh eggs were found at Prince Albert June 1 and June 7, and at Quill Lake June 16. The song of this bird is a rasping *quee-quee-quee*.

91. *Spizella pusilla arenacea*. WESTERN FIELD SPARROW.—"Rare: only one seen. This I flushed from a nest fourteen miles southeast of Prince Albert on June 7. The eggs were fresh." (Barnes.)

92. *Melospiza melodia melodia*. SONG SPARROW. Or, *Melospiza*

melodia juddi. DAKOTA SONG SPARROW.—Abundant at Prince Albert where it was a common nester. Common at Quill Lake. Fresh eggs observed on June 6 and 7. No specimens taken, hence theoretically referred to one of the above species. Some heavily wooded islands were favorite resorts of this bird.

93. **Melospiza georgiana.** SWAMP SPARROW.—A pair of these birds was seen at Prince Albert on June 7. They behaved as if their nest was close by. Mr. Barnes reports it as common.

94. **Pipilo maculatus.** ARCTIC TOWHEE.—One of these birds was heard in a poplar thicket on July 14.

95. **Zamelodia ludoviciana.** ROSE-BREADED GROSBK.—Three of these birds were seen at Prince Albert on June 7.

96. **Calamospiza melanocorys.** LARK BUNTING.—One of these birds was identified with reasonable certainty at Prince Albert.

97. **Progne subis.** PURPLE MARTIN.—Seen at Winnipeg and Quill Lake. In the latter place a pair was nesting in the eaves of a settler's cabin at the edge of rather heavy timber.

98. **Petrochelidon lunifrons.** CLIFF SWALLOW.—Abundant at Prince Albert and nesting.

99. **Hirundo erythrogaster.** BARN SWALLOW.—Several pairs were found nesting under a bridge at Quill Lake on June 23. Others were seen.

100. **Iridoprocne bicolor.** TREE SWALLOW.—Common breeder at Prince Albert. Nest found in a hole in a tree on May 31. Tolerably common at Quill Lake.

101. **Riparia riparia.** BANK SWALLOW.—“Not uncommon at Prince Albert.” (Barnes.)

102. **Bombycilla cedrorum.** CEDAR WAXWING.—Two seen on July 6.

103. **Lanius ludovicianus excubitorides.** WHITE-RUMPED SHRIKE.—“June 8 I found a Shrike's nest six feet up in a small bunch of willows at the edge of a swamp. It contained six highly incubated eggs. No parent bird was seen.” (Barnes.) On July 14 an adult was seen feeding two young nearly as large as itself. A single individual was seen on July 9.

104. **Vireosylva olivacea.** RED-EYED-VIREO.—Not uncommon at Prince Albert and Quill Lake.

105. **Vireosylva philadelphica.** PHILADELPHIA VIREO.—“Not uncommon at Prince Albert.” (Barnes.)

106. **Vireosylva gilva swainsoni.** WESTERN WARBLING VIREO.—One specimen was taken on June 1. Others, presumably of this species, were frequently seen at Prince Albert and Quill Lake.

107. **Dendroica æstiva.** YELLOW WARBLER.—Common at both localities. A nest was found at Prince Albert on June 6. The species was observed at Regina on May 22.

108. **Dendroica maculosa.** MAGNOLIA WARBLER.—Observed at Regina on May 23.

109. **Vermivora peregrina.** TENNESSEE WARBLER.—Observed in considerable numbers at Regina on May 23.

110. **Anthus spraguei.** SPRAGUE'S PIPIT.—A specimen was taken at Quill Lake on June 30. Others were seen.

111. **Dumetella carolinensis.** CATBIRD.—Several were seen at Prince Albert.

112. **Toxostoma rufum.** BROWN THRASHER.—A settler who was familiar with this bird in "the States" reported that a pair nested on his place at Quill Lake in June, 1909.

113. **Troglodytes ædon parkmani.** WESTERN HOUSE WREN.—Tolerably common in poplar thickets at Quill Lake.

114. **Cistothorus stellaris.** SHORT-BILLED MARSH WREN.—Common about the northern end of Big Quill in long prairie grass adjoining the shore of the lake. One specimen was taken on June 22.

115. **Telmatodytes palustris.** LONG-BILLED MARSH WREN.—Not uncommon in the vicinity of Prince Albert where fresh eggs were found on June 6 and 7.

116. **Hylocichla fuscescens salicicola.** WILLOW THRUSH.—Common at Prince Albert. Oftener heard singing than seen.

117. **Planesticus migratorius.** ROBIN.—Robins were tolerably common at Prince Albert. But one specimen collected. This is intermediate between the eastern and the western form. There is a white spot at the tip of one of the outer tail feathers, but it is lacking on the other. However, the bird has the more rufous breast and smaller size of the eastern form, so is referred to *migratorius*. Prof. McCown states that the eastern Robin occurs in this region, but other investigators have found the western form *propinqua*. (But see Auk, Vol. XXV, p. 34, Jan. 1908.)

118. **Passer domesticus.** ENGLISH SPARROW.—Seen about Prince Albert and at the farm where we staid, eight miles from there. Seen at Quill Lake on June 27.

ADDENDA.

Mr. W. B. Mershon of Saginaw, Mich., visited Quill Lake with a party of sportsmen on October 8, remaining several days. Mr. Mershon has kindly written us, giving some bird notes that are interesting because relating to conditions at Quill Lake during the fall, while ours are all summer notes. Mr. Mershon mentions a snowstorm on October 11, and a temperature of 20 degrees above on that date, with the ponds covered with thin ice. The following species are mentioned:

Phalacrocorax auritus. DOUBLE-CRESTED CORMORANT.—A flock of 5 was seen on October 9. As these are the only ones observed during a stay of four days, it is probable that most of the birds seen during the summer had departed at this date.

Anatidæ. DUCKS.—Ducks were plentiful, but were flying high and frequenting the middle of the lake. They did not decoy well, nor in other ways offer the sportsman good shooting. The species mentioned are Canvas-back, Blue-bills, Redheads, Widgeon, and Mallards. As Mr. Mershon is a sportsman well acquainted with the ducks of North America, and as he mentions only such species as we found common during our stay, it is probable that a number of species of ducks avoid Quill Lake to a great extent.

Oidemia fusca. VELVET SCOTER.—“I noticed a great many flocks of Velvet Scoter, and succeeded in killing one fine specimen that I am now having mounted.” (Mershon.)

Branta canadensis. CANADA GOOSE.—Geese were reported as thick in wheat stubble west of Quill Lake.

Olor columbianus. WHISTLING SWAN.—“I saw quantities of swans.” (Mershon). Date, October 9.

Charadrius dominicus. GOLDEN PLOVER.—One seen on October 9, and two on October 11.

Bonasa umbellus umbelloides. GRAY RUFFED GROUSE.—Contrary to our experience, Mr. Mershon found this bird not rare at Quill Lake, getting three specimens and seeing another. He comments upon the unusually heavy feathering of the tarsus of the birds taken.

GENERAL NOTES.

A Parasitic Jaeger near Ottawa, Ontario.—A bird of the year of *Stercorarius parasiticus* was brought to the undersigned during the first week of September, 1909. It had been shot on the 4th of that month on the Ottawa River, near where the Lievre empties into it. It was a male; the stomach was empty. The nearest localities given in Macoun's latest catalogue for this species are the Great Lakes (Fleming) and the Gulf of St. Lawrence (Dionne). If I remember correctly, there had been no great storms or other violent meteorological disturbances previous to the date of capture. It therefore seems somewhat remarkable that this species should be found in the place mentioned.—G. EIFFRIG, *Addison, O.*

European Widgeon (*Mareca penelope*) in Florida.—I want to record the taking of two specimens of *Mareca penelope* near Titusville, Florida, on February 20, 1907. Both were full-plumaged adult males and were shot by N. F. Emmons of Boston. One bird he had mounted for himself and the other, which he presented to me at the time, is in my collection. The only mention that C. B. Cory makes of this bird in his book entitled

'Key to the Water Birds of Florida' is that "it occasionally wanders to our shores." In Bulletin No. 26 of the Biological Survey, Wells W. Cooke in his article 'Distribution and Migration of North American Ducks, Geese and Swans' says, in respect to the European Widgeon, that "on the Atlantic coast the dates are almost entirely in the fall and winter. . . . there are only three records after February 5." If this is the case, and I find no evidence to the contrary, this is the fourth record only after the date he mentions, for the Atlantic coast.—S. PRESCOTT FAX, *Boston, Mass.*

Two Records of the Golden-eye at De Funiak Springs, Florida.—On December 5, 1907, an adult female Golden-eye Duck (*Clangula clangula americana*) was taken on a small fresh-water lake near De Funiak Springs, Florida. The specimen was taken by M. Harry Moore, and mounted by him. It was sent to the American Museum of Natural History, and identified by W. De W. Miller from an examination of the specimen.

On November 20, 1909, an adult female of the same species was seen on the same lake. It was observed under such favorable conditions that there was no doubt in my mind as to the identification.

Prof. Wells W. Cooke says that this is "almost the extreme limit of its southern range, as it has been noted only a few times in Florida."—G. CLYDE FISHER, *De Funiak Springs, Florida.*

Nesting of the Black Duck in Yates County, N. Y.—May 26, 1907, I found a nest of the Black Duck (*Anas rubripes*) in Potter Swamp. The locality was a young second growth of maple, beech and ash of four to eight inches in diameter. The ground was nearly dry and covered with a rank growth of ferns and skunk cabbage. The female was flushed from a bunch of six small maples growing from a mound about three feet above the surrounding ground and there in the center of the bunch of trees were six eggs layed on a few broken fern stems and dead leaves.

On my next visit (June 2) there were nine eggs and a nice lot of down had been placed around and among the eggs. A farmer told Mr. C. F. Stone of finding a nest of this duck in Potter Swamp in 1892 or 1893, but this is the first authentic record to my knowledge.—VERDI BURTCH, *Branchport, N. Y.*

A Bittern taken in West Florida.—On November 17, 1909, an adult male Bittern (*Botaurus lentiginosus*) was taken near De Funiak Springs, Florida. This is the first individual of this species that I have seen in this vicinity in the two and one-half years that I have been here, so I conclude that it is probably somewhat rare. This specimen, which was in excellent condition, was taken in a dry 'broom-sedge' field,—a rather unusual place, it seemed to me. Its stomach contained two grasshoppers which it had probably captured in this field. The bird was killed by Wm. F. Jones while out quail hunting.

While the large Bittern may be rare in this section, its smaller relative, the Least Bittern, is quite common in suitable localities, and breeds here.—G. CLYDE FISHER, *De Funiak Springs, Florida*.

Northern Phalarope in Bladen County, North Carolina.—On September 22, 1909, I saw three phalaropes on White Lake. It was a little after sundown and I was out on the lake, fishing, without a gun. I followed them up and was certain of their identity (as to being phalaropes, that is), getting within fifteen yards or so of them. The day following, September 23, I was out on the lake in both morning and afternoon, covering the lake pretty thoroughly, but none were seen. I went out fishing about sundown, with gun this time, and saw five; flushed them just out of range. They went off quite a distance and then circled round almost to the place from which they were flushed. I paddled up quite close and killed three, all of which proved to be Northern Phalaropes (*Lobipes lobatus*). All were in fair bodily condition and were very active on the water, dodging about in a most erratic manner after food and reminding me very much, in their movements, of a whirligig beetle. Occasionally one would fly a few feet as if attracted by an insect or other food item. They were not at all shy. They flew well and strongly, reminding me of some of the sandpipers, the flight being always near the surface.

On the same date I saw two Black Terns (*Hydrochelidon nigra surinamensis*) on the lake. On the next day, September 24, I saw several very light colored terns which I suppose were immature Black Terns. These were fishing, a thing I have never seen Black Terns indulge in.—H. H. BRIMLEY, *Raleigh, N. C.*

Wilson's Snipe Wintering near Boston, Mass.—Mr. C. A. Clark of Lynn informs me that at least seven Wilson's Snipe (*Gallinago delicata*) are wintering not far from that city in a meadow on the northeast side of Hall's Brook, which runs into Flax Pond. There have been open places in the brook all winter and the birds come out of the meadow and are seen "boring" into the mud with their long bills. When everything has been locked in frost and snow they have been seen thrusting their long bills down through the snow. The flock was first noticed by Mr. Clark on November 12, 1909, and he has watched them up to date, January 22, 1910.

I have notes of the occurrences of single snipe occasionally about brooks and springs in January, but have never before heard of such a number of them here in winter. The weather of the month has been very severe.—E. H. FORBUSH, *Boston, Mass.*

Another Golden Eagle taken in West Florida.—On February 3, 1910, an adult Golden Eagle (*Aquila chrysaetos*) was taken about nine miles north of De Funiak Springs, Florida. This is the fourth individual of this species taken in this vicinity during the past two and one-half years. (See 'The Auk,' XXVII, 1910, 80.)—G. CLYDE FISHER, *De Funiak Springs, Florida*.

Another Pigeon Hawk in Maine in Winter. — I saw about noon, February 26, 1910, a Pigeon Hawk (*Falco columbarius*) flying in a southerly direction over Temple Street, Portland, not far above the tops of the buildings. At the same time I noted a large flock of English Sparrows high in the air. No doubt they had aided in attracting the hawk to this busy part of the city.— NATHAN CLIFFORD BROWN, *Portland, Maine*.

Further Notes on the Occurrence of the Pigeon Hawk (*Falco columbarius*) in Winter, near Portland, Maine.— On December 30, 1905, I saw at Fish Point, the southeastern extremity of Portland, a Pigeon Hawk flying toward the city. The next winter a male was shot at Westbrook, Maine, on December 1 (1906), by Mr. Ralph H. Norton, and is preserved in the writer's collection. A female in adult plumage was shot in Scarborough on February 22, 1907, by Mr. J. H. Coalbroth. The latter case was reported to me, and I visited Mr. Coalbroth a few days later and saw the bird, freshly mounted for his collection. These occurrences are recorded in Journ. Maine Orn. Soc., IX, p. 9.

On December 11, 1908, I saw another in Deering's Oaks, Portland. This one has been alluded to, without exact dates, by the late Wm. H. Brownson, in the Portland 'Daily Advertiser' of January 2, 1909; also in Journ. Maine Orn. Soc., XI, p. 10. In the same number of the 'Advertiser' Mr. Brownson made another record, one seen by him at Delano Park, Cape Elizabeth, "a few days later." I am able to furnish the exact date as December 13.

We therefore have with the record just made by Mr. N. C. Brown, six known instances of the occurrence of the Pigeon Hawk in or near Portland, Maine, between December 1 and March 1.— ARTHUR H. NORTON, *Portland, Me.*

Barn Owl in Colorado.— On May 24, 1909, the carpenter of the cattle ranch of Mr. Jacob Scherrer caught an adult Barn Owl (*Aluco pratincola*) in the barn of the home ranch, which is located about eighteen miles north of Burlington, Colo., the exact location of this home ranch being in Sec. 36, T. 5 S., R. 45 W. This places the spot of record within a few miles of the east line of Colorado. The bird was uninjured, in perfect plumage, and was kept at the ranch a few days when it was killed and brought in the flesh (May 29, 1909) to Mr. A. T. Allen, taxidermist, of Denver, at whose place the undersigned saw it. The sex was undetermined. This is, according to Cooke's List, the eleventh record for Colorado.— W. H. BERGTOLD, *Denver, Colo.*

Snowy Owl in Yates County, N. Y.— Several times in the past five or six winters I have been told of Snowy Owls (*Nyctea nyctea*) being seen on the hills west of Branchport, N. Y., but have never had actual proof of one being seen until Dec. 20, 1909, when a farmer shot and winged a heavily barred female. He kept it alive for over a week when it died and he brought it to me.— VERDI BURTCH, *Branchport, N. Y.*

Bubo virginianus occidentalis in Michigan.—On examining the series of Great Horned Owls in the collection of the U. S. National Museum I find there is a specimen of *Bubo virginianus occidentalis* from Michigan. This specimen, No. 200,415, was caught in a trap, January 5, 1906, by Mr. C. McLaughlin at Robbins, Ontonagan Co., and by him sent to the Museum where it was determined by Mr. H. C. Oberholser. I know of no prior record for Michigan, as in Mr. Oberholser's paper, 'A Revision of the American Great Horned Owls' (Proc. U. S. Nat. Mus., XXVII, No. 1352), the eastern range of *occidentalis* is extended east to Minnesota. A critical examination of specimens of *Bubo* from the Upper Peninsula may bring other specimens to light.—B. H. SWALES, *Grosse Isle, Mich.*

Turkey Vulture in Northern Steuben County, N. Y.—A female Turkey Vulture (*Cathartes aura septentrionalis*) was shot by a farmer in the town of Pulteney, Steuben Co., N. Y., July 11, 1909, and the skin is now in the possession of Richard Cowan, Bluff Point, N. Y. There were eleven of the vultures feeding on a dead hog in a gully.—VERDI BURTCH, *Branchport, N. Y.*

The Last Passenger Pigeons in Wayne County, Michigan.—It is generally conceded that the Passenger Pigeon is now extinct in its wild state, and it has occurred to me that some additional data relative to the last local record may prove of interest. In the 'Bulletin of the Michigan Ornithological Club' (Vol. IV, September, 1903, p. 81) Dr. Philip E. Moody records the last pigeon taken here as follows: "A Wild or Passenger Pigeon (*Ectopistes migratorius*) was shot September 14th, 1898, at Chestnut Ridge, a few miles from Detroit, by Frank Clements, of this city. The bird—an immature specimen—was later mounted by Chas. Campion and is now in the collection of J. H. Fleming, of Toronto, Ont. This is probably the last authentic record of this species in Michigan."

I have since talked with Dr. Moody regarding this record and he says "Mr. Clements and I were in the thick woods when we noticed three pigeons. They were flying above the tree tops, two abreast and the third behind and lower down. The latter bird lit near the top of a tall tree but the others continued their flight without a pause. I could have shot it but thought it was a Mourning Dove. When Mr. Clements picked up the bird we knew at once what it was and looked for the other two but they could not be found."

Dr. Moody feels certain that all three were of the same species, in fact, the remaining two seemed larger. All points considered, it is possible that the birds were two adults accompanied by their young. They may have traveled far, which would account for the young bird falling behind and pausing to rest. The bird was not taken at Chestnut Ridge, though not far away. The exact locality is Private Claim 660, Dearborn Township, Wayne Co., Michigan.—J. CLAIRE WOOD, *Detroit, Mich.*

Carolina Parakeet (*Conurus carolinensis*).—For many years the range of this species has been extended to include Michigan on the strength of a specimen preserved in the U. S. National Museum. I have recently examined this bird, number 1228, and find that it was received by Prof. S. F. Baird from Dr. Leib of Philadelphia among a small collection of other birds. In the original catalogue of the National Museum this specimen is recorded as number 1228, in Prof. Baird's handwriting, but is given no locality. However, he later records it as "Southern States" in *Pac. R. R. Surveys*, IX, 1858, p. 68, together with its measurements, etc. As Prof. Baird undoubtedly knew more then of the status of the birds received from Dr. Leib, this specimen must be eliminated from all consideration as a Michigan record. I believe that there is no other Michigan record for the species. In a letter from Prof. Walter B. Barrows, dated Feb. 25, 1910, he says: "I am quite sure that there is no other record of a Michigan specimen to which the slightest weight can be attached. There have been various suppositions as to the Parakeet's former occurrence in the State, but these are only conjectures."—B. H. SWALES, *Grosse Isle, Mich.*

Acadian Flycatcher in Ontario.—On writing to my friend Dr. MacCallum of Penetanguishene, who lived for many years at Dunnville, regarding my capture of the Acadian Flycatcher in southwestern Ontario last June, he replied, that he had a nest and set of three eggs, which he had always believed belonged to this species. I had seen this nest years ago, but was not at that time aware of the marked difference between the nest of this species and that of the Alder Flycatcher. Since then I have added nests of both of these species to my collection and know how easy it is to distinguish between them. I therefore wrote Dr. MacCallum, asking for the privilege of inspecting this nest and set. The favor was promptly granted, and the nest is undoubtedly that of the Acadian Flycatcher as the Doctor surmised. "It was taken," he writes, "from an old thickly branched apple tree on June 24, 1884." The nest is composed of fine grasses and rootlets bound together on the outside by what appears to be caterpillar web.

The well known habit of this species of making the nest appear like an accidental bunch of drift, by the addition of loose flowers of alder, walnut or oak, is varied in this instance by the substitution of a large number of bud scales, apparently of beech. The nest is, as usual, shallow, the cavity measuring $\frac{7}{8}$ of an inch deep, by $1\frac{1}{2}$ inches wide, while the external measurements are 5×2 . In every particular this nest corresponds so exactly with that of the Acadian Flycatcher, that there cannot be the least doubt of its belonging to that species, thereby antedating my discovery of the bird in Ontario by 25 years.

It is, of course, quite within the possibilities, that there are favorable locations for this bird scattered along the north shore of Lake Erie, in fact it would be surprising if there were not, and as the spread of southern species which barely reach the limits of Ontario appears to be strictly

limited to the vicinity of that lake, it seems altogether likely that this bird will be found, eventually, to be a somewhat rare, but quite regular inhabitant of the strip of land extending along the north shore of Lake Erie.—W. E. SAUNDERS, *London, Ont.*

Magpie in Knox County, Indiana.—A Magpie (*Pica pica hudsonia*) has been seen passing the winter a few miles north of Bicknell, Knox Co., Indiana. It has been observed by quite a number of persons who all tell me the bird was black with white shoulder patches, a white band on the wings, and white underparts; bill long and black, tail long and wedge-shaped, body slender. It kept around outbuildings, feed lots and slaughter pens and fed on offal. It was seen December 24, 1907, and also February 10, 1908. So far as I am aware, this is the first record for the species for this State.—E. J. CHANSLER, *Bicknell, Knox Co., Ind.*

A Correction: A New Bird for the United States.—In the July, 1909, 'Auk,' I reported the capture of a Red-eyed Cowbird (*Tangavius æneus involucratus*) near Tucson, Ariz. This specimen was later identified by the Biological Survey as *T. æneus æneus* of western Mexico, which thus makes a new record for the area covered by the A. O. U. Check-List.

Several Red-eyed Cowbirds spent the summer near Tucson, and at least four young were raised; two by Cañon Towhees and two by Arizona Hooded Orioles. Specimens were last observed September 21.

The capture of a male Red-eyed Cowbird May 28, at Sacaton, Arizona, (on the Gila River, 75 miles northwest of Tucson and 30 miles southeast of Phoenix) was reported by Mr. Breninger in the August 'Condor.' W. W. Cooke writes me that this specimen was compared with mine and was found to represent the same variety.—S. S. VISHNER, *University of Chicago.*

A Migration of Longspurs over Chicago on December 13, 1909.—On December 13, 1909, a considerable migration of birds, probably some species of Longspur, occurred at Chicago between the hours, as far as I observed, of 5:30 P. M. and 10 P. M. As it was dark during this period the birds were not seen, but their calls were plainly heard as often as I went outside to listen for them. Their number indicated that large flocks of birds were passing overhead, and their changes of source suggested that they were traveling in a southerly direction. The calls resembled the common one-syllabled flight call of the Lapland Longspur (*Calcarius lapponicus*), but had more of a ringing quality.

My observations were made on and near the campus of the University of Chicago, which is about a mile west of Lake Michigan. The official weather map and report for this date show that Chicago was in the center of a "low," with winds coming from the west and northwest at a velocity of 23 to 26 miles an hour. A wet snow fell up to 8 o'clock P. M. and the temperature was a little below freezing.

Cold weather and snowfall in the north and northwest may have driven the birds down. It would be interesting to learn whether they were observed south of Chicago.—RALPH W. CHANEY, *Chicago, Ill.*

Winter Migration at Night.—A remarkable flight of birds, which I believe were Lapland Longspurs, occurred on the night of December 13, 1909. Thousands of birds passed southward during the snow-storm, their voices coming from above, as we hear them during the spring migrations. They were first heard about dark, and through the evening until ten o'clock, when I retired. They passed over steadily, their notes being heard from the sky from every direction. This is the first time I have ever heard of such an occurrence in winter.—HENRY K. COALE, *Highland Park, Ill.*

The Seaside Sparrow on Cape Cod, Massachusetts, in Winter.—On December 29, 1909, while duck shooting in the salt marshes at Barnstable, Mass., I secured two specimens of the Seaside Sparrow (*Ammodramus maritimus*). The birds were found in the tall thatch bordering a large creek about three hundred yards from Sandy Neck. They were the only birds of the species seen during four days spent in the marshes. One proved to be a male, the other a female.

Howe and Allen's 'Birds of Massachusetts' records the capture of one Seaside Sparrow in the Barnstable marshes on February 9, 1898, by Messrs. H. B. Bigelow and G. C. Shattuck, and of another, a male, on February 9, 1901, by Mr. Howe. No later records have come to my notice, so apparently mine is the third winter record of this species in Massachusetts and would suggest that the bird is perhaps not such an irregular straggler there in winter.—ALFRED C. REDFIELD, *Wayne, Pa.*

Further Notes on the Lark Sparrow in Southwestern Pennsylvania.—During the latter part of August, 1909, while driving along a road near Leetsdale, Pa., I saw four Lark Sparrows (*Chondestes grammacus*) at precisely the same spot at which I collected my first specimen in June, 1908.¹ I had no time to look for more of the birds, but they undoubtedly breed in this locality, and this spring I mean to investigate more thoroughly as regards this bird's presence in a region so far from his usual range.—WM. G. PITCAIRN, *Allegheny, Pa.*

A Chipping Sparrow in late December at Boston, Mass.—On December 21, 1909, close to the shore of Chestnut Hill Reservoir within the limits of the city I found a brightly plumaged Chipping Sparrow (*Spizella passerina*) picking busily and happily on the grass about some evergreens at midday. The temperature was at the frost point, but no snowfalls to remain had occurred up to that time. There had been several mornings of tempera-

¹ See Auk, Vol. XXV, 1908, p. 476.

tures as low as 16° to 20° , however. I would naturally have expected the sparrow to be a Tree Sparrow, but it was a veritable Chippy, with which I spent ten minutes. Mr. William Brewster, in his 'Birds of the Cambridge Region,' gives one December record, that of a bird seen by him at Watertown on December 31, 1869. The severe Christmas blizzard came four days later, depositing a foot and a half of snow, and this belated sparrow was not again seen. Mr. Brewster gives October 25 as the date of departure of the last Chippies; Dr. Townsend for Essex County, October 28. My records in the last three years extend the season somewhat later. They are: two Chipping Sparrows on the Common on October 30, 1907 and 1909; one on November 1, 1907, at Arlington, two on the 5th at Waverley, five on the 6th in Brookline, two on the 9th in Stoneham; one on October 29, 1908, at Chestnut Hill; a company of ten on November 5 and 7 of the same year at Stoneham; and one at the same locality in Stoneham on November 6, 1909.—HORACE W. WRIGHT, *Boston, Mass.*

Cerulean Warbler (*Dendroica cerulea*) in Northern New Jersey.—On Sept. 25, 1909, I collected an immature male of this species near my home at Palisades Park, N. J. The bird was found among the flocks of migrating warblers and undoubtedly was a migrant. This species appears to be rare in the Hudson Valley, and the specimen in question is the only one I have seen during my experiences in the field covering a period of seven years.—J. A. WEBER, *Palisades Park, N. J.*

A Wintering Brown Thrasher in Northern New Jersey.—Records of wintering Brown Thrashers in northern New Jersey are so few that my recent experience with one of this species seems worthy of note. Prof. Witmer Stone, in his 'Birds of New Jersey,' says that Mr. Chapman has two winter records for Englewood, January 31, 1885, and "on another occasion" (date not given). These are the only records I have ever seen for the northern part of the State. On January 23 of this year, while walking with a friend in the outskirts of this town, a large bird flew up from the ground some distance ahead of us and took shelter in a thicket of low bushes and green-briar. His general appearance and flight at once suggested to us thoughts of Brown Thrasher, but we had had but a momentary glimpse of him, and could hardly believe it possible, especially considering weather conditions, for there was a foot of snow on the ground and we had just experienced a week of severe weather, with some nights of zero temperature.

One of us went on either side of the line of bushes, the bird keeping just ahead of us and out of sight until it reached a large tree, around the roots of which there was a little bare ground where the snow had drifted off. Here our quarry came to the ground and at once became interested in something which was evidently to his liking, for when we came abreast of him, he was hammering it with his beak, after the manner of a jay. Here

we got a good look at him, one on either side, and each at a distance of about fifty feet, and he proved himself a Thrasher. The writer was provided with field glasses, and made a complete identification.

My companion was Mr. David M. Macnaughton of Chatham, N. J., who will corroborate these statements. I saw the bird again in the same locality on February 5, and he was then scratching busily in some dead leaves on a south slope which was clear of snow. I was within ten feet of him before he flew up into an apple tree nearby.

He seemed vigorous and contented, and as he has managed to find a living through two very heavy snows and some very cold weather, his chances for surviving the rest of the winter seem good — barring cats. — R. C. CASKEY, *Morristown, N. J.*

A Carolina Wren in New London County, Connecticut. — While driving along a well traveled road on the afternoon of Dec. 29, 1909, I had the pleasure of meeting a Carolina Wren (*Thryothorus ludovicianus*) and visited with him several minutes as he was not in the least shy. The thermometer registered zero that morning, with a foot of snow on the ground. — ARTHUR W. BROCKWAY, *Hadlyme, Conn.*

Wilson's Thrush (*Hylocichla fuscescens*) a common Breeder Near Allegheny, Pennsylvania. — During the spring of 1909, I found the Veery breeding quite commonly in suitable localities near Allegheny, Pennsylvania. — WM. G. PITCAIRN, *Allegheny, Pa.*

Concerning Three Erroneous Georgia Records. — In 'The Auk' for January, 1910, p. 88, Mr. Ridgway cites the late Maj. Bendire as authority for the breeding of *Molothrus ater* in Wayne and McIntosh counties. But the latter must have been misinformed, as if this species really breeds in those counties the breeding range would unquestionably extend northward along the coast to South Carolina, as the Cowbird breeds far north. It is true that I only spent a "part of a single month in each county" — in May, 1891 — not 1901 as Mr. Ridgway has stated. But a glance at the map of Georgia will reveal the fact that by crossing the Altamaha River from McIntosh County anyone can go into the counties of Wayne and Glynn in less than an hour.

Mr. Ridgway says that "the breeding of the Bank Swallow and Short-billed Marsh Wren on St. Simon's Island is based on eggs actually collected there and positively identified (both by Mr. Bailey and myself)." In his 'Manual of North American Birds,' 1887, p. 463, Mr. Ridgway gives the measurement of eggs for *Clivicola riparia* as .70 × .49, and of *Stelgidopteryx serripennis* as .72 × .51. If there is a person who can differentiate the eggs of these two species by comparison I would like to know where he can be found!

In re the Short-billed Marsh Wren, the eggs collected between the years 1853 and 1865 purporting to belong to this species, were really *albino* eggs

of *Telmatodytes palustris griseus* — a form which often lays colorless eggs, as I well know, having taken eggs as long ago as 1877 of the latter and which are now in the Charleston Museum. Mr. Ridgway gives the measurement of the eggs of *Cistothorus stellaris* as $.63 \times .48$ and of *palustris* as $.66 \times .46$. As *griseus* is smaller than *palustris* the eggs are naturally smaller. The colorless eggs of *T. p. griseus* taken by me in 1877 I believed were representatives of *Cistothorus stellaris* simply because they were white instead of chocolate! If the Short-billed Marsh Wren bred on St. Simon's Island between the years 1853 and 1865 (which is questionable) it would still continue to do so at the present time, as the conditions are unchanged.

While I am discussing these Georgia records it is well to mention that the eggs of Bachman's Warbler (*Vermivora bachmani*) were recorded¹ from Georgia by Mr. H. B. Bailey, taken by the late Dr. G. S. Wilson between the years 1853 and 1865. These eggs were described as "dull white; around the larger end is a wreath of dark brown, covering nearly one-third of the egg; while a few obscure spots of lilac are scattered over the rest of the surface." As is now well-known, the eggs of Bachman's Warbler are pure white without any markings of any color.—ARTHUR T. WAYNE, Mount Pleasant, S. C.

Birds of Central Alberta.— In 'The Auk' for October, 1909, appeared a list of birds by myself for this district, and in the January, 1910, issue appeared some comment on the list by Mr. W. E. Saunders of London, Ontario. May I be allowed the space to show where these so-called discrepancies are not discrepancies at all, as will be explained by the following.

Whooping Crane.— "A very common migrant, stopping at least part of the summer along the larger lakes. One nest was located which was afterwards abandoned." This statement is correct. I have seen no Sandhill Cranes here at all.

White-winged Crossbill.— My notes sent to the 'Ottawa Naturalist' for 1907 stating, "Seen but once," "a pair carrying nesting material in a spruce swamp," are those of 1908. This accounts for my stating it bred here. When a bird is seen carrying nesting material it is quite obvious that it nests in that locality. Where I stated in 'The Auk,' "seen but once" I should have said, "seen but twice."

Evening Grosbeak.— My 1906 list states: "Seen but once." My 1907 list, sent to the 'Naturalist,' says: "Seen but once." For 1908 the list states, "Found nest, four birds around most of time, quite common." My 1909 list states "Rare and breeding." As will be seen at a glance, these birds were "rare" during 1906, 1907, and 1909, and quite common during 1908; therefore the conclusion was drawn that the bird, on the whole, should be considered as "quite rare," as stated in 'The Auk.'

¹ Bull. Nutt. Orn. Club, VIII, 1883, 38.

Nelson's Sparrow.— My 1907 list, sent to the 'Naturalist,' states that it is common, also that it breeds here. My 1908 list states "rare" and "seen but once"; also that it "breeds here." My 1909 list states, "common and breeding." Therefore, taking the observations as a whole, I considered the bird was "fairly common."

Lincoln's Sparrow.— I do not claim that my list is complete and I so state in my article in 'The Auk' for October, 1909, where I say: "My list would have been a great deal larger if I had been able to visit the districts lying to the west and south, but as time would not permit me to do this I will have to be content with the list here given and trust that new species may be added each year until the list is complete."

Philadelphia Vireo.— My 1908 list sent to the 'Naturalist' states, "Very rare"; also that it breeds here, which was correct for 1908. 'The Auk' list says, "Very common," which was correct for 1909. These birds being very numerous during the season of 1909 led me to conclude that they were *very common*, which is correct.

Brewer's Blackbird.— My 1908 list, in the 'Naturalist,' states: "Common at Edmonton — but rare here," which was absolutely correct. Travelling over a greater territory in 1909 I found these birds to outnumber the Rusty Blackbird, hence my statement in 'The Auk' to that effect.

Golden Eye.— My 1908 list, in the 'Naturalist,' stated this bird was "very rare"; also that it bred here. 'The Auk' list states this bird is "Quite common during the spring and fall and met with occasionally during the summer. A nest found near here with ten eggs." These birds being more numerous during 1909 than during 1908 led me to make the above statement.

During the years 1907, 1908, and 1909, I kept a very careful record of the birds of this locality on forms supplied me by the Biological Survey of the U. S. Department of Agriculture. As my 1907 list was made up it was complete in itself, and for 1907 only. When my 1908 list was made up it was also complete in *itself*, and for 1908 only. When my 1909 list was made up *it* was complete in *itself*, and for 1909 only.

The list of birds appearing in the 'Ottawa Naturalist' for October, 1909, was made up by the editor of that journal from the duplicate copies which I made for the U. S. Biological Survey and were for the years 1907 and 1908 only, without any annotations aside from those noted in the reports.

The list sent to 'The Auk' was taken from my 1906 observations and from the duplicate copies which I made for the U. S. Biological Survey for the years 1907, 1908 and 1909, with annotations. Therefore it is very easy to see why the two lists slightly differ.

If this list does not harmonize with Mr. Saunders's or other lists taken in this locality I cannot help it, but I would have him understand fully that because it does not agree with other lists is no sign whatever that it is not correct.

I hope this will fully explain the so called discrepancies and corrections pointed out by Mr. Saunders.—SIDNEY S. S. STANSELL, *Edmonton, Alberta.*

Breeding Records from Southern Illinois.—In connection with Biological Survey field work during the season of 1909 I visited a number of localities in southern Illinois and among the bird notes gathered on this trip the following seem to be worthy of record.

Rallus elegans. KING RAIL.—At Shawneetown, June 18, a King Rail was seen a number of times around a small marshy pond in the river bottoms. It was quite tame and ran about near me, uttering a loud *keck-keck*. After walking about in the grass awhile I started two young ones, which doubtless explains the tameness of the parent.

Buteo lineatus. RED-SHOULDERED HAWK.—Several pairs breed in the swamps at Olive Branch. A female collected there on May 18 is referable to the typical subspecies.

Strix varia. BARRED OWL.—An adult female was collected at Olive Branch, May 18.

Dryobates villosus auduboni. SOUTHERN HAIRY WOODPECKER.—Fairly common in the swamps at Olive Branch where a specimen was collected May 17. This form has not previously been recorded from Illinois.

Sturnella magna argutula. SOUTHERN MEADOWLARK.—This subspecies is common throughout southern Illinois; a specimen was taken at Olive Branch.

Chondestes grammacus. LARK SPARROW.—This bird is of very local distribution in southern Illinois; it was seen only between Cobden and Lick Creek, where several pairs were noted May 22.

Lanius ludovicianus migrans. MIGRANT SHRIKE.—Shrikes are quite scarce in the extreme southern part of the State, but are rather common on the prairies about Coulterville. A specimen taken there and one at Odin are referable to *migrans*. One was seen at Olive Branch and two at McClure.

Helinaia swainsoni. SWAINSON'S WARBLER.—This bird was observed several times at Olive Branch (May 15–20) and at Reevesville (June 21, 22) but unfortunately no specimens were secured. The birds were identified first by their songs and later by the aid of a field glass.—ARTHUR H. HOWELL, *Washington, D. C.*

Notes from Eastern Ohio.—On February 6, 1905, when the temperature was unpleasantly close to the zero mark, a Holboell's Grebe was brought to me by several boys to identify. They had picked it up in an alley in an exhausted condition. The boys took it up to the Court House tower and pitched it out into space, expecting to see it take wing and fly away, but the poor bird fell upon the roof of the building and, rolling off, struck the ground and was killed by the fall.

On May 11, 1909, while taking a few minutes in the evening to look for warblers in my favorite woods, I encountered my first Prothonotary Warbler. It flew directly at me, avoiding my face by a few inches, and lit almost at my feet. For fully twenty minutes I had the pleasure of studying it at close range.

A farmer living near here has trapped and shot 40 hawks, nearly all being Red-tails, on his farm within the past year. Another farmer living in this county has destroyed nearly as many recently. I have noticed a diminution in their numbers this winter.

On March, 1907, a Whistling Swan was shot by Frank McCombs, near Cadiz, and on the 22d of the same month another was shot by W. E. Mong, near Scio, this county.

In a conversation once with Dr. Beal, of Scio College, the author of the Beal local option law, he told me of talking with a guide in northern Michigan who claims once to have counted thousands of "Wild" Pigeons lying dead upon the shore of the lake. A great storm had swept over the lake a few days before, and the guide stated to the Doctor, who was spending his vacation in that region at the time, that the shore of the lake was literally covered with the bodies of the dead birds for a great distance.

Delbert Burdett, a farmer living near Cadiz, who has pointed out to me the nesting places of the Redstart, Pileated Woodpecker, and other rather rare birds, claim to have seen a great flock of Passenger Pigeons in September, 1898. He was at work cutting timber near St. Clairsville, Belmont County, Ohio, sixteen miles from Cadiz, when a flock of "thousands" of Pigeons suddenly appeared, and in alighting, covered a field several acres in extent. A number of old farmers saw the birds, and all agreed they were "Wild" Pigeons. I questioned Mr. Burdett very closely regarding the occurrence, and have every reason for believing his story is correct.

Mr. and Mrs. E. C. Gerke, of Rayland, Jefferson County, Ohio, captured a Snowy Owl in their barn on May 9, 1909. This is a decidedly late date for this owl to be found in eastern Ohio.—HARRY B. McCONNELL, *Cadiz, Ohio.*

New Records for the State of Washington.—I wish to report the following records for the State of Washington:

Dendragapus obscurus richardsoni. RICHARDSON'S GROUSE.—This bird is reported by S. E. Piper of the Biological Survey as being not uncommon in the lateral cañons of Snake River during the breeding season. So far as known they leave this locality before the first of October. Mr. Piper has hunted these birds and has made "some good bags." Unfortunately I have been unable to locate his specimens.

Ammodramus savannarum bimaculatus. WESTERN GRASSHOPPER SPARROW.—Two adult males in breeding plumage were taken in a wheat field in the Touchet Valley near Prescott, Walla Walla Co., on June 16, 1908. These specimens are in my possession.

Junco montanus. MOUNTAIN JUNCO.—A female of this species was taken by R. E. Snodgrass at Pullman, Whitman Co., October 11, 1902. This specimen is in the Washington State College Museum. The species was determined by H. C. Oberholser.

Certhia familiaris montana. ROCKY MOUNTAIN CREEPER.—A specimen taken at Prescott, Walla Walla Co., Dec. 26, 1908, was determined by W. H.

Osgood of the Field Natural History Museum to be of this subspecies. This specimen is in my collection.

Penthestes atricapillus septentrionalis. LONG-TAILED CHICKADEE.—Two specimens from Pullman and one from Prescott of my collecting were determined by H. C. Oberholser to be of this variety. On comparing them with the collection of the Field Natural History Museum, Chicago, these specimens appear to be intermediate between *atricapillus* and *septentrionalis*. All the chickadees from these localities seem to be of this character.

All of these birds except the Junco were placed in the hypothetical lists by Dawson and Bolles (Birds of Washington, 1909).—LEE R. DICE, *Prescott, Wash.*

Some Rare Occurrences in Yates County, N. Y.—Brünnich's Murre (*Uria lomvia*).—A female Brünnich's Murre was killed in the inlet of Keuka Lake at Branchport Dec. 1, 1902, by Myron Pelton and the skin is now in my collection. It was apparently unable to rise from the water and was killed with a boat oar. There was not a particle of fat on the body and the stomach and intestines were entirely empty.

Orchard Oriole (*Icterus spurius*).—While at a farm house in the country near Branchport, May 6, 1903, I heard a bird note that was new to me and, following it up, I soon saw an Orchard Oriole in a cherry tree in the yard. As it stayed around for some time I had a good chance to study it and I am absolutely sure that I identified it correctly. I know of but one other record of this bird in Yates County. James Flahive has a mounted female in his collection that he shot in his yard in Penn Yan in 187—.

Hudsonian Godwit. (*Limosa hamastica*).—A Hudsonian Godwit was shot on the mud flats at Branchport, Oct. 29, 1905, by a hunter who brought it to me to be identified and the skin is now in my collection.—VERDI BURTCH, *Branchport, N. Y.*

Notes from Boulder County, Colorado.—**Varied Thrush.**—A bird of this species was seen on December 5, 1909, in Gregory Cañon near Boulder. The weather for the preceding week had been cold and snowy. The bird was not taken but was observed with a field-glass under conditions permitting a full description. After feeling certain of the identification myself, I sent the description to Professor Cooke, who accepted it as satisfactory evidence for a State record.

Cañon Wren.—During the winter of 1909–10, a resident, rather inconspicuous but not rare. One was taken on November 25, 1909, and three others seen the same day. I have seen or heard them, usually a single bird at a time, in Boulder, Gregory, and Bear cañons at frequent intervals from October 30 till the middle of February (when these notes were written).

Barn Owl.—A single bird was seen on October 31, 1909, about six miles east of Boulder. It was about twenty feet down in a deserted shaft, perched on a ledge. It was still in the same place a week later, but in attempting to drive it out of the hole, the bird sailed further down and was not seen again.

Virginia Rail.—On December 24, 1909, a single bird was observed in the narrow open channel of a small stream near a cat-tail marsh. I watched it closely with a field-glass for some time before it disappeared under a thin sheet of ice that had been left above the water-level. It did not act injured though I did not see it fly.

Golden-crowned Kinglet.—One was taken on February 6, 1910, from a flock of about eight. They were feeding in the pines on a mesa near Boulder.—N. DEW. BETTS, *Boulder, Colorado.*

Massachusetts Notes.—**Blue-winged Teal** (*Querquedula discors*).—Because this bird is considered a rare spring migrant near the coast of this State I would like to record having seen a pair on April 11, 1909, in a pond near Wenham Swamp, Topsfield, Mass. The male was in full adult plumage, the white crescent before the eye plainly visible. I observed them for some time with a pair of glasses and as they were not over a hundred yards distant there could be no question as to their identity.

Red Phalarope (*Phalaropus fulcarinus*).—On May 2, 1909, I shot a male specimen on the Guerned beach, Duxbury, Mass. The bird even at that date was in the extreme immature or winter plumage with no trace of red. However a few feathers on the back were slightly tipped with tawny. For one or two days previous there had been a rather heavy easterly storm and I suppose it had been driven ashore at that time. At any rate the bird was not tired but strong on the wing, and furthermore was in good condition. It is now in my collection. Though these birds can hardly be called rare on our coast, they are more apt to be taken in the late summer or early fall rather than in the spring.

Barn Swallow (*Hirundo erythrogaster*).—On August 16, 1909, an albino male specimen was shot by Russell Bearse at Chatham, Mass. The bird was taken on the flats off Monomoy Island where Mr. Bearse had gone after shore birds, and where it had been seen previously for several days. It was nearly pure white and the only suggestion of any other color was on the inner webs of the middle tail feathers where the white spots ordinarily exist in the normal plumage. These white spots on close scrutiny could still be seen, showing that the rest of the plumage was not pure white. This specimen is in the collection of the Boston Society of Natural History.

Buff-breasted Sandpiper (*Trynqites subruficollis*).—On September 4, 1909, I shot a female specimen on Monomoy Island, Chatham, Mass. There was an easterly storm the day previous making it very improbable that the bird had just arrived. For that reason, and because of the fact that the bird was fat and in excellent condition, it seems likely that it had been there several days. I was walking through the meadows where the salt grass had been cut looking for Pectoral Sandpipers when this bird flew up. As I was on the lookout for anything odd that day I immediately recognized it as it rose. It is now in my collection. On enquiring of a few people in Chatham, Mr. Russell Bearse, a reliable local gunner, informed me that nearly every year during the flight of Pectoral Sandpipers in Sep-

tember he had killed one of these birds on these same meadows. He is on the grounds regularly several days a week and is the best informed person in the neighborhood. This only goes to show that there are undoubtedly more of these birds killed than is known about.

King Rail (*Rallus elegans*).— I received a fine adult male this fall from Chatham, Mass., where it was shot on October 31, 1909, by Mr. Russell Bearse. The King Rail seems to be a rather uncommon straggler from the South and there are but few recent records of its having been taken here. Mr. F. H. Kennard records in 'The Auk,' Vol. XXV, p. 218, a male being taken at Needham, October 10, 1907, and in the collection of the Boston Society of Natural History is a bird taken in a steel trap at Peabody, Mass., March 13, 1908. The specimen to which I refer taken at Chatham is also in the above collection. Mr. Bearse also informed me that on December 28, 1908, he killed another King Rail at Chatham which was given to Mr. Warren E. Freeman of Arlington, Mass. This latter seems like a very late date.

Chewink (*Pipilo erythrophthalmus*).— This seems to be a rare winter resident and I can find no record for this State since 1904 when, on December 4, at Smith's Point, Manchester, a bird was seen by W. R. Peabody. On December 28, 29 and 30, 1909, I saw a handsome male bird at Edgartown (Martha's Vineyard), about two miles from the town. I was duck shooting and staying at our camp on the "Great Pond," and observed this bird both from the building and from the stand. The end of the point where the camp is situated is covered with a thick growth of bushes and the Chewink seemed to be living in them. He was so tame that he scratched among the leaves almost at my feet, and even when I moved he did not appear to be greatly frightened. He also came close to the door in search of the food we threw out after meals. A family of rats were living under the building and several times I saw one of them searching among the leaves for this food, with the Chewink only a very few feet away engaged in the same occupation. The day I left the bird was still there and appeared to be in good condition. As far as I could see his only other feathered companions were a pair of Song Sparrows that spent their time in the same way scratching among the leaves in search of food. During these three days the weather was bitterly cold, the thermometer going to nearly zero every night, and considering the continued cold weather we had experienced since the first of December, and the blizzard the day after Christmas, the bird seemed to have chosen an extremely cold winter to stay north. Though I never heard him chirp, he showed no signs of minding the cold, for when feeding he was very active on his feet. I never saw him fly or attempt to, but in such thick cover there was no occasion for it. Still, he may have had a bad wing which would account for his being north. It seems reasonable to believe that physical disability must play an important part in such cases as these.—S. PRESCOTT FAY, Boston, Mass.

Bird Notes from Springfield, Mass., and Vicinity.—*Gallinule galeata*. On January 17, 1910, William Dearden, a taxidermist, residing in Springfield, received a Florida Gallinule, to be mounted, which was sent to him from the town of Ware. The occurrence of this bird in Massachusetts at this season of the year, was so unprecedented, that deputy game warden, Dennis F. Shea, residing in Ware, was asked to inquire into the matter, which he did, and reported that this bird was first seen about the middle of December in a field on the farm of Arthur F. Bennett, in the town of Palmer, feeding on an old pig's head that lay upon the ground; that for a number of days after that time, Mr. Bennett saw the bird near his hen-coop, searching for food. Finally he caught it and put it in with his fowls, where in a few days it died. Mr. Bennett states that he thought his hens killed it.

Sialia sialis. Early in the past winter four Bluebirds were observed in the town of Westfield, and they have since been seen in the same locality in this town many times during the months of January and February. The region adopted by these birds as their winter home was near a trolley line and the passengers in the cars were often entertained by seeing these unusual winter visitors. This is the first authenticated instance of Bluebirds wintering in the Connecticut Valley as far north as Springfield.

Mimus polyglottos. About the 20th of last November, a Mockingbird appeared in the residential part of Springfield, where the homes are surrounded by ample grounds, and in that vicinity made its home during the past winter. Very soon after it was first observed, food was furnished it and it became quite tame. So-called mockingbird food, rice, bread crumbs, and suet, were provided for it, which latter it seemed to prefer. During severe storms this bird would disappear for a day or two, but with the return of pleasant weather would again be seen. The suggestion that it was an escaped cage bird has not the force it would have had a few years ago, as in Massachusetts, we now have a generally respected law forbidding the sale or confinement of these birds. Mockingbirds have been frequently seen in the vicinity of Springfield during the warmer months, and have rarely bred here, but never before has one been known to pass the winter in this part of the Connecticut Valley.

In 'The Auk' for last October, Francis H. Allen stated that a pair of Mockingbirds successfully raised a brood of four young in the eastern part of Massachusetts, and this bird may be one of that family.—ROBERT O. MORRIS, *Springfield, Mass.*

Another Tagged Bird heard from.—Mr. J. T. Miner of Kingsville, Ont., has a number of wild ducks in semi-domestication along with geese and pheasants. Each year he has interesting experiences with wild birds, which are attracted by the presence of their kind.

Last fall his Black Ducks attracted a wild one of the same species on August 5, and within a few weeks the bird became so tame, that it could be handled. Mr. Miner then put a ring around its leg, and left it at liberty

as before. About Dec. 15, it left, and the following letter from Mr. W. E. Bray, Anderson, South Carolina, gives subsequent history.

Anderson, S. C.

On Friday evening, Jan. 14, I was hunting on Rockey River near this city, and killed a wild duck, with a band on his leg marked Box 48 Kingsville, Ont.

I supposed who ever sent him out wanted to hear from him, so I am writing to let you know where he came to his end. He was a very fine specimen. I must commend him for his judgment, for he came to the best country in the best state in America.

If you will let me hear from you, I will return the band I took from his leg. So hoping you will send me his pedigree, I will close until I hear from you. Send me your address in full. W. E. Bray.

Mr. Miner writes that Mr. Bray has since sent him the identical ring which was on the Duck's leg.

Kingsville lies on the north shore of Lake Erie, about twenty-five miles from the east end of the lake.—W. E. SAUNDERS, *London, Ontario*.

RECENT LITERATURE.

Thayer on Concealing Coloration in Animals.¹—It is now fourteen years since the eminent artist, Abbott H. Thayer, first published his discovery of "The law which underlies Protective Coloration," in 'The Auk' for April and July, 1896. These articles were later republished, in full or in abstract, in the 'Yearbook' of the Smithsonian Institution for 1898, and in 'Nature' in 1902. Mr. Thayer has also given many practical demonstrations of his discovery before various gatherings of naturalists, his first oral presentation of the subject, with experiments and demonstrations, so far as we are aware, having been made before the American Ornithologists' Union at the annual meeting held in Cambridge, in November, 1896, and again more elaborately before the same body in New York, in November, 1897. Later similar demonstrations were given in England and in various cities in Europe. His previous most elaborate exposition of the subject in print appeared in the 'Popular Science Monthly' for December,

¹ Concealing-Coloration | in the | Animal Kingdom | An Exposition of the Laws of Disguise | through Color and Pattern: | Being a Summary of | Abbott H. Thayer's | Discoveries | By | Gerald H. Thayer | With an Introductory Essay by | A. H. Thayer | Illustrated by | Abbott H. Thayer Gerald H. Thayer | Richard S. Meryman and others | and with Photographs | New York | The Macmillan Co. | 1909 [= February, 1910] — 4to, pp. xix + 260, 16 colored plates, and 140 black-and-white figures.

1909,¹ under the title 'An Arraignment of the Theories of Mimicry and Warning Colors.' Thus the general principles and outlines of Mr. Thayer's discoveries have become more or less well known to a large number of naturalists, and their important bearing on previous theories of protective coloration has been widely recognized. For nearly twenty years he has persistently continued his studies and experiments, visiting tropical countries for the express purpose of widening his opportunities for research, and in the present volume we have his mature results. The main text has been prepared by his son, who has worked with him in his investigations, evidently under the close supervision of Mr. Thayer, who has contributed an introductory essay on the general subject, and supplementary matter in the form of footnotes and addenda to the main text. Mr. Thayer's important discoveries in the field of animal coloration are here for the first time elaborately set forth and profusely illustrated.

In the preface it is stated: "The present book has been constructed for two main purposes: First, to lay before the comparatively few naturalists and others who have appreciated the original articles on the subject, the results of my father's further researches, with examples of the working of the newly revealed laws in many branches of the animal kingdom; and second, to present the matter, both in its simplest terms and variously elaborated, to a wider circle of readers. We hope thus to clear the way to a more general understanding and more intelligent study of the relations between animals' costumes and their environments."

The 'Introduction' (pp. 3-12) is an essay by Abbott H. Thayer, on the "psychological and other basic principles" of the subject, in which it is claimed that while protective coloration in animals is naturally considered as belonging to the province of the zoölogist, "it properly belongs to the realm of *pictorial art*, and can be interpreted only by painters. For it deals wholly in optical illusion, and this is the very gist of a painter's life. He is born with a sense of it; . . . and his pictures live by it." The revelation of principles and facts relating to the subject which have escaped the penetration of the naturalist prove that this claim is not an empty boast.

No adequate synopsis of Mr. Thayer's work can be given within the limits available in the present connection, but a summary of the twenty-seven chapter headings, with a minimum of comment, will give some intimation of its scope and methods. Thus, in Chapter I, "the law which underlies Protective Coloration" is introduced and analyzed. This law is thus stated: "Animals are painted by Nature darkest on those parts which tend to be most lighted by the sky's light, and *vice versa*." It is shown that "light-and-shade is more important than color, because it is an attribute of form, while color is only secondarily so." Chapter II includes definition of terms and illustrations of "obliterative coloration" (figs. 1-13). Protective or disguising coloration tends to render animals invisible in their normal haunts, while 'mimicry,' as the term is here used,

¹ Vol. LXXV, pp. 555-570, with 2 half-tone plates and 12 text figures.

tends to deceptive visibility. On sandy deserts birds, mammals, and reptiles are counter-shaded from sand-color to white, and on dark-colored ground, from very dark to white.

Chapters III-IX deal especially with obliterative coloration, or the use of markings ("picture-patterns") on counter-shaded birds, illustrated mostly by photographs from life of Woodcock, Snipe, Ruffed Grouse, Whip-poor-wills, Nighthawks, Ptarmigan, Sage Grouse, Meadowlarks, Eider Ducks, Short-eared Owls, Plovers, etc. (figs. 14-52). These chapters are designed to show the perfect obliterative coloration of terrestrial birds that live among weeds and grass, fallen leaves and sticks, patches of mud, and pools of water — the perfect merging of their forms and markings with the background. The two next succeeding chapters (X and XI) treat of the markings of rails, bitterns, and other swamp birds, of obliteratively shaded ducks, and the uses served by spots and patterns in bird costumes (figs. 53-55).

In Chapter XII the birds of the ocean are taken up. Chapter XIII discusses the "inherent obliterative power of markings," which tend to obliterate or cancel, "by their separate and conflicting pattern, the visibility of the details and boundaries of form," and is illustrated by diagrams, both colored and in black-and-white, and photographs of birds from life (figs. 56-63). The same general subject is continued in Chapter XIV, in which are considered the special functions of markings, and the protective coloration of nestlings, illustrated with numerous figures of birds from life (figs. 64-82). Chapters XV-XIX deal with other features of coloration in birds, as the bright colors of bills and feet, the brilliant hues and iridescent patches of color so characteristic of hummingbirds and other tropical birds, etc., in connection with their surroundings (pl. vi and fig. 83).

Chapters XX-XXII deal with mammals, which are treated along much the same lines as the birds, the consideration of which occupies the nineteen preceding chapters. Fishes are considered in Chapter XXIII, reptiles and amphibians in Chapter XXIV, and caterpillars, butterflies and moths, and a variety of other insects in Chapters XXV-XXVII, followed by supplementary matter in two appendices.

The text is devoted to a definition of principles and the presentation and illustration of facts; hypothetical conclusions from the facts are left to the reader. Optical illusions are disclosed and explained, some of the most important parts of the text being the explanatory legends accompanying the figures and colored plates. It is not to be overlooked that the work is by an artist, a vision-expert, who is qualified to contribute experience and expert knowledge in the field of optical effects. A striking feature in a book of this character is the absence of argument.

Mr. Thayer's position in the matter of animal coloration is directly the opposite of that of most naturalists, who assume that patterns of color or markings *reveal* the wearer, while Mr. Thayer convincingly shows that in reality they *conceal* when the animal, in its normal surroundings, is seen

from the viewpoints of its enemies, or its prey, as the case may be. (See especially fig. 103 with its explanatory legend.) He also discriminates between the way an animal looks to man and the way it must look to its fellow creatures — *i. e.*, whether the viewpoint is from above or from below, etc., or from the point most vital to the animal. This is perhaps more fully brought out in his recent paper in the 'Popular Science Monthly,' already cited, in which he endeavors to demonstrate that striking and diversified colors tend to concealment, if not at all times, that this is the net result of these supposed conspicuous costumes. The optical hypotheses on which have been based the theories of 'warning-colors,' 'recognition marks,' and mimicry he believes "would never have lived a day had their originators begun by testing them." His contention is that animals are colored to match their backgrounds. "Scarlet and yellow fruit colors, sky-blue and green leaf colors, on the Macaw, are as absolutely the picture of this bird's background while he is dangerously absorbed in feeding in a tropical fruit tree, as is the little terrestrial mammal's brown the picture of the universal earth-brown on which he lives." Nowhere, however, does the author say that the costumes of animals are *for* concealment nor does he attempt to show how or why they came to be as they are. It is, however, said (in a footnote to p. 36): "We ourselves attribute all such to natural selection, pure and simple and omnipotent."

Here and there the explanations and illustrations will doubtless appear to some of Mr. Thayer's readers a little strained and overdone, but they cannot fail to recognize that he has in the main kept well within reasonable bounds, and that he has discovered a key to much that was before contradictory and irreconcilable, and that, as a whole, his work is by far the most important contribution yet made to the subject of animal coloration. — J. A. A.

Howard's 'The British Warblers,' Part IV.¹—The good things said of Parts I–III of this excellent work are equally applicable to Part IV, which consists mainly of two monographs, respectively of the Whitethroat and Lesser Whitethroat, the former occupying 23 pages of text and the latter 20 pages, each with a colored plate and several photogravures. In addition a colored plate and two pages of text are devoted, respectively, to the Greenish Willow Warbler and the Siberian Chiff-chaff; there is also an excellent colored plate of eggs, illustrating the eggs of eight species of British Warblers, figuring 44 eggs, series of six to eight specimens being given in several instances to show the range of variation.

¹ The British Warblers: A History with Problems of their Lives. By H. Eliot Howard, F. Z. S., M. B. O. U. Illustrated by Henrik Grönvold. London: R. H. Porter, 7 Princes Street, Cavendish Square, W. Part 4, December, 1901. Price 21 s. net.

Contents:—Whitethroat, pp. 1–23, 1 colored plate, 4 photogravure plates; Lesser Whitethroat, pp. 1–20, 1 colored plate, 2 photogravure plates; Greenish Willow Warbler, pp. 2, 1 colored plate; Siberian Chiff-chaff, pp. 2, 1 colored plate; Eggs of British Warblers, 1 colored plate; temporary titlepage and contents for Parts 1–4.

The account of the Whitethroat is minutely biographical, but in that of the Lesser Whitethroat discussions are introduced relative to the nature of the excitement manifested by various kinds of birds, which when with young birds are suddenly approached, and of the cause of the local variations in the songs of birds of the same species, of which he details many examples. He inclines to the opinion that climate may have an influence upon the character of song. He says, in concluding this discussion: "Climate could never have been a cause of song, but by some such means [as previously explained] it may have determined the lines along which any particular development has taken place." — J. A. A.

Reed and Wright on the Birds of Cayuga Lake Basin, New York.—

In a paper of 80 pages, Messrs. Hugh D. Reed and Albert H. Wright, of Cornell University, give an annotated list of 'The Vertebrates of the Cayuga Lake Basin, New York,'¹ with much preliminary matter relating to the topography and meteorology of the region, illustrated with contour and other maps.

The area of the Cayuga Lake Basin is given as "about 1,600 square miles," its meridional length as about 65 miles, with a breadth varying from about 12 to 36 miles. The "basin is, in the main, typically Transitional, although in certain localities there is a trace of the Upper Austral and Canadian." The paper is based mainly on the records of the Zoölogical Department of Cornell University since its opening in 1868 and the personal observations of the authors, which cover the last twelve years; and acknowledgments of assistance are made to various members of the university and others.

The paper consists of an 'Introduction' of twenty pages, followed by the 'Catalogue of Species,' which are numbered consecutively from fishes to mammals, the fishes numbering 65 species, the amphibians 17, the reptiles 20, the birds 257, and the mammals 40. Under 'Life Zones,' in the introduction (pp. 376-379), is a brief analysis of the bird fauna with reference to the zones to which the breeding species properly belong, and later (pp. 386-390) the species are tabulated according to their manner of occurrence, as (1) permanent residents, (2) transient visitants, (3) summer residents, (4) winter residents, (5) of rare occurrence, and (6) accidental visitants. The 'catalogue of the species' occupies pp. 409-453, the annotations comprising a quite full statement as to their manner of occurrence, including migration and breeding dates, and the citation in footnotes of the records of capture of the rarer species. The work is evidently based on careful and extensive research and forms a valuable record of present, and

¹ The Vertebrates of the Cayuga Lake Basin, N. Y. By Hugh D. Reed and Albert W. Wright. Proc. American Philosophical Society, Vol. XLVIII, No. 193, 1909 (1910), pp. 370-459, pll. xvii-xx (maps). From the Department of Neurology and Vertebrate Zoölogy, Cornell University. (Although the cover date is 1909, the dates of printing on the signatures are Jan. 6-8, 1910.)

to some extent of earlier, ornithological conditions of this limited and somewhat peculiar area. We note a singular slip in the name of the Pied-billed Grebe which is given (in two places) as *Tachybaptus podiceps* instead of *Podilymbus podiceps*; also *Stryx* for *Strix* (p. 427); *articus* for *arcticus* (p. 429); and in respect to diphthongs one is puzzled to know whether it was the intention to separate or combine the vowels *ae* and *oe*, since they occur about as often *æ* and *œ* as *ae* and *oe*, both forms sometimes occurring on the same or adjoining pages; and the same irregularity of usage with *ae* and *æ*. But these are minor faults in an otherwise very carefully printed paper, and one of permanent value as a contribution to faunal literature.—J. A. A.

Beebe on the 'Ecology of the Hoatzin.'—In a recent paper of 22 pages, illustrated with several half-tone plates, Mr. C. William Beebe treats of the history and habits of the Hoatzin,¹ based on his studies of the bird in its haunts in Venezuela and British Guiana. On neither occasion were young birds to be found, so that the notes on the species refer solely to the adults, which were met with in life on the Guarapiche River in northern Venezuela in March, 1908, and on the Abary River in April, 1909. The introduction contains observations on the structure of its well-developed crop, and on the relationships of this "extremely ancient and isolated type." Then follow sections devoted to the history of its discovery, its nomenclature, geographical distribution, its 'general appearance,' its parasites, habits, food, nest and eggs, the author's field notes at the two localities above mentioned, and an account of his photographic studies, the results of which are reproduced in the accompanying half-tone plates, showing its haunts, attitudes in trees, and its nests. Mr. Beebe found the Hoatzin beginning to nest in British Guiana in April, but the nesting season evidently varies, since others have found it nesting here from December to July, and on the Orinoco in September.

The Hoatzins, says Mr. Beebe, "appear to be extremely sedentary, and day after day we could be sure of finding the birds in the same place. We located nine flocks, ranging from a single pair to forty-two in number, and these seemed never to move from their favorite trees except when driven back a few yards into the jungle by our intruding canoe." One of the photographs here published shows a flock of eleven birds. It is unnecessary to say that Mr. Beebe's paper is an important contribution to the history of an exceedingly interesting and hitherto little known bird.—J. A. A.

Beebe on Birds of Northeastern Venezuela.²—Mr. Beebe, accompanied by Mrs. Beebe, spent about three weeks, during March and April, 1908,

¹ A Contribution to the Ecology of the Adult Hoatzin. By C. William Beebe, Curator of Birds, New York Zoölogical Society. Zoologica, Scientific Contributions of the New York Zoological Society, Vol. I, No. 2, pp. 45-66, fig. 1-20. Dec. 28, 1909.

² An Ornithological Reconnaissance of Northeastern Venezuela. By C. William Beebe. Zoologica, Vol. I, No. 3, pp. 67-114, fig. 21-37. Dec. 28, 1909.

near the celebrated pitch lake at La Brea, in northeastern Venezuela. The twenty days' observations there made are the basis of the present paper, which gives a short account of the general character of the region, followed by an annotated list of about 140 species of birds, of which 22 were breeding. The notes on the habits of many of the species are quite extended, occupying from half a page to several pages, as in the case of the Yellow-backed Cassique. The paper closes with 'Part V. Ecological Conclusions,' in which is made a comparison of the bird life of Venezuela with that of the State of New York, with a full-page chart illustrative of "Arboreal Adaptive Radiation."—J. A. A.

Report on the Immigration of Summer Residents in England and Wales in the Spring of 1908.—The fourth Report of the Committee of the British Ornithologists' Club on the spring migration of birds into England and Wales during 1908 forms, as usual, a special volume of the 'Bulletin' of the Club.¹ This report is similar in character to those of previous years, giving first an account of the weather for each day of the period covered by the immigration (March 14–May 31), noting as well the daily arrivals of birds, followed by details of the chief movements observed at the lights during the same period, with maps for each of the thirty-three species scheduled. There are also notes on migratory movements during the autumn of 1907, and records from the lighthouses and lightships for the same period. As heretofore, generalizations relating to the general subject are held in reserve and will not be attempted till the observations have been continued for a much longer period.—J. A. A.

L. H. Miller on California Fossil Birds.—Recent exploration of the Quaternary 'asphalt Rancho La Brea beds in southern California has resulted in the discovery of abundant remains of birds as well as mammals, part of which represent forms now living in California, while part belong to extinct types only remotely allied to any known living forms. These asphalt beds have for ages proved a trap for the unwary bird or mammal that chanced to visit them. The oil from the oil strata that is forced to the surface accumulates in the natural depressions of the surface as small lakelets, which through evaporation become "masses of a plastic and marvelously tenacious and tar-like substance." Mr. Miller describes² these tar-pools as possessing "the mirror-like surface of water and, especially at night, might be mistaken for such; yet the bird whose wing-tip touches the innocent looking surface, or whose foot plashes into its margin,

¹ Report on the Immigration of Summer Residents in the Spring of 1908: also Notes on the Migratory Movements and Records received from Lighthouses and Light-vessels during the Autumn of 1907. By the Committee appointed by the British Ornithologist's Club, = Bulletin of the British Ornithologists' Club, Vol. XXIV, November, 1909. Pp. 235, with 29 maps.

² Fossil Birds of the Quaternary of Southern California. By Loye Holmes Miller. The Condor, Vol. XII, Jan., 1910, pp. 12–15.

is as surely doomed as though caught in the jaws of a more active enemy. In rainy season the depression becomes further filled with the addition of a super-stratum of water which may cover the tar surface to a depth of several inches, remaining fairly pure water for some time before it becomes polluted by the rise of the lighter constituents of the oil layer. Animals, small and large, wade rashly into the treacherous trap thus baited with that rare luxury of the region, water. The struggling victim becomes again bait for the predatory forms, and all in turn tempt the carrion feeder. To-day, as in ages past, the trap is at work. Barn Owls, Great Blue Herons, Meadowlarks and other birds have been noticed in the surface pools, still in the flesh" (*l. c.*, p. 13).

This treacherous region is situated ten miles west of Los Angeles, California, on the old Rancho La Brea, formerly a grain and stock ranch, from which these fossiliferous asphalt strata have been named by Prof. J. C. Merriam the "Rancho La Brea Formation."

The avian remains which have been collected from these beds have been studied by Mr. Miller, who has published two papers describing two remarkable extinct types. His first paper¹ deals with a fossil species of Peacock, represented by a series of well-preserved tarso-metatarsal bones, which are shorter and stouter than those of *Pavo muticus*, and much larger than those of the common peacock. On the basis of this determination Mr. Miller proceeds to comment on the former distribution of the genus *Pavo*, fossil forms of which have been recorded from the Tertiary and Quaternary formations of Europe and India, in comparison with its present restricted range, the wild stock being now confined to southern Asia.

The other form described by Mr. Miller² is a raptorial bird, much larger and otherwise so different from any of the existing birds of prey, that the propriety of recognizing it as referable to a new family (Teratornithidæ) is suggested. The species is represented by parts of several skulls and other important fragments of the skeleton, as the sternum and pectoral arch. The species is named *Teratornis merriami*, in honor of Prof. John C. Merriam of the University of California, so well known for his important investigations of the Quaternary vertebrate fossils of California. From the comparative figures given of the reconstructed skull of *Teratornis* and of skulls of the California Condor and Bald Eagle, it is shown that *Teratornis* was a bird of immense bulk, at least twice the size of the Condor and several times larger than the Bald Eagle.

Among the avian species thus far found in the Rancho La Brea beds are the existing California Condor, the Turkey Vulture, Golden Eagle, various species of hawks and owls, geese, the Great-Blue Heron, and Raven. The

¹ *Pavo californicus*, A Fossil Peacock from the Quaternary Asphalt Beds of Rancho La Brea. By Loye Holmes Miller. University of California Publications, Bulletin of the Department of Geology, Vol. V, No. 19, pp. 285-289, pl. xv. August, 1909.

² *Teratornis*, a new Avian genus from Rancho La Brea. *Ibid.*, V, No. 21, pp. 305-317, with 11 text figures. September, 1909.

extinct species include an indeterminate species of stork, crane, pheasant, etc., besides the two extinct species already mentioned, and a Black Vulture, considered to be specifically distinct from the existing species and (in a footnote) named *Catharista occidentalis*.—J. A. A.

Ticehurst's 'A History of the Birds of Kent.'—The County of Kent, in the southeast of England, is an area of small extent, with a length of some 64 miles and an average breadth of about 26 miles. It is for the most part low, much of it below one hundred feet above sea-level and only small portions reach an elevation of 500 feet. It is, however, rich in bird life, which has had frequent historians, at least for portions of the County. Mr. Ticehurst states that "some eighteen books or pamphlets have been written dealing with the avifauna of the whole or a part of Kent or containing lists of birds that have been found in different districts," the first historian having been William Boys (1735–1803), who obtained the type specimens of the Sandwich Tern, the Dartford Warbler and the Kentish Plover, all described by Latham from specimens obtained by Boys at Sandwich, in Kent. Mr. Ticehurst, however, is the first to take up the work exhaustively, and to produce a monograph¹ that will long be the standard on the subject. An introduction of some 30 pages treats of the topography, geology, and vegetation, and the relation of these features to the avifauna; the local migration, number of species, the local museums and collections that contain Kentish specimens, and the work of former authors on the birds of Kent. From this we learn that the species entitled to be recognized as birds of Kent number 312, with 42 others whose claims to such recognition are considered doubtful, but which are presented in bracketed paragraphs. "Of the 107 species which breed regularly in Kent 37 are purely summer visitors and 70, whether migratory or not, may be found in the county throughout the year."

The main text takes up the species in systematic sequence, beginning with the Thrushes, with reference to their manner of occurrence in Kent, special consideration being given to the subject of their local movements and migrations. Following the names of each species references are given to the principal works on Kentish birds, citing the names only of the authors and page references to their works, which are listed, with their full titles, in a bibliography of the books and periodicals consulted (pp. xxv–xxix), while the original records, in the case of the rarer species, are cited in footnotes.

On casually turning the pages of the work one may be struck with the antiquated character of the technical nomenclature, but this is explained in the preface as follows: "With regard to the vexed questions of nomen-

¹ A History of the Birds of Kent | By | Norman F. Ticehurst, | M. A., F. R. C. S., F. Z. S., M. B. O. U. | With twenty-four plates and a map | Witherby & Co. | 326 High Holborn London | 1909 — 8vo, pp. i–lvi + 1–568, 24 half-tone plates, and a large colored map. Price, 21s. net.

elature, for the convenience of those who practically confine their studies to British birds, that system has been adhered to, so far as possible, which was adopted by the late Howard Saunders in the second edition of his well-known 'Illustrated Manual of British Birds' [1899], together with the revisions made by the same author in his 'List of British Birds revised to July, 1907.'" The author so far departs from this system, however, as to admit trinomials where two or more races of the same species have occurred in Kent; and it is perhaps an open question whether it would not have been more in the interest of his local readers if he had also employed the approved modern technical names in place of those that merely recall a former phase of nomenclature, giving also, if considered desirable, the names preferred by Saunders. Otherwise how will the currently approved names of to-day ever become known to the class of readers the author is so solicitous to serve?

The "economic aspects" of the species are among the topics especially included within the author's scope, and on turning to his account of the Starling we find the following statement, which seems of sufficient interest to warrant its presentation in the present connection, since we now have this bird with us, "for better or for worse." He says: "From an agricultural standpoint the Starling is a most useful and valuable bird, and it is important in a county like Kent that this should be thoroughly recognized; it is true that in the fruit-growing districts they do a considerable amount of damage to the cherry crop, and it appears desirable that their numbers in these districts should be kept within reasonable limits, and this is done by a systematic thinning every season, though in view of this bird's migratory habits this can only be effective if done in the breeding season. Elsewhere they do nothing but good, devouring enormous numbers of wireworm, crane-fly and cockchafer larvæ, besides feeding at certain times of the year on the perfect insects themselves, particularly the crane-fly. I for one offer them every encouragement in the way of nesting boxes, to which they very readily take."

In the British Islands and in western Europe the Starling is a migratory bird, the breeding birds of Kent, with their young beginning (at least in part) to leave late in July, and the autumn emigration is continued until the middle of September; while the "return of the summer breeding stock begins at the end of February and lasts throughout March to early April." The Starling is present, however, in Kent, as in other parts of England, throughout the year, the winter population arriving from central Europe mostly during October. It is interesting to note that the colonies of Starlings that have recently become established in the United States, particularly those about New York city, are non-migratory, merely assembling in flocks soon after the breeding season and extending their foraging trips to the nearby adjacent country.

In respect to the House Sparrow, Mr. Ticehurst considers the question of its being harmful or useful an open one — "one of the burning questions of the day"— and urges a scientific inquiry "under Government authority,

not only to thresh out the whole question, but, in the event, as seems probable, of an entirely adverse verdict being recorded against the bird, to specify definite methods for keeping its numbers within proper bounds." He adds, however, that "there seems to be hardly a crop that is grown that is not said to suffer more or less at some time of the year from the depredations of this bird."

The illustration of this excellent work comprise a large folding map of the County of Kent, colored to indicate altitude for each hundred feet from sea level to 500 feet; half-tone plates of the typical haunts of various species of birds, and of some of the rarer species; also facsimile reproductions of the original plates of the Dartford Warbler (from Pennant's 'Zoology,' 1776), the Cream-colored Courser (Latham's 'Synopsis,' 1785), the Kentish Plover (Lewin's 'Birds of Great Britain'), and the Sandwich Tern (Boys's 'History of Sandwich,' 1784), all drawn from specimens killed in Kent, and hence of special local interest.—J. A. A.

J. Grinnell on New North American Birds.—Two new North American Cowbirds marked the closing days of 1909, Mr. Grinnell, in a paper¹ bearing date December 31, 1909, describing a new form based on a series of eleven males from Humboldt County, Nevada, under the name *Molothrus ater artemisiae*, while Dr. L. B. Bishop, in 'The Auk' for January, 1910 (mailed January 3), described as new a form from Saskatchewan as *Molothrus ater dwighti*. These two forms are both characterized as larger than the two previously recognized forms of this species (*ater ater* and *ater obscurus*), with a slender bill, but as not presenting any color differences. Whether the two new forms are separable from each other is not very clearly evident from the descriptions, since the measurements in the one case are given in millimeters and in the other in inches, rendering the reduction of the one system to the other necessary before a comparison can be made. This is unfortunate and should not be countenanced, especially since the metric system is now almost universally the standard in all scientific investigations except in ornithology, where the tendency in some instances is to adhere to an obsolete method for the convenience of the few who are willing to allow temporary inconvenience to outweigh and retard the adoption of a new but generally approved standard.

Mr. Grinnell contends that his new Great Basin form is derived from southern or Mexican stock — from *obscurus* rather than from *ater* — and we believe that few who have given consideration to parallel cases will disagree with him. We are surprised, however, at his attitude respecting the nomenclature of these and similarly allied forms in other groups. He says (in a footnote to p. 277): "As to the nomenclatural treatment of the

¹ A New Cowbird of the Genus *Molothrus*, with a note on the probable Genetic Relationships of the North American Forms. By Joseph Grinnell. University of California Publ., Zoöl., Vol. V, No. 5, pp. 275-281, 1 text figure. December 31, 1909.

three forms here distinguished, I am reluctantly following recent precedent. . . . I have no evidence whatever that the three forms, *aler*, *artemisiae*, and *obscurus*, intergrade continuously and geographically between each other. In other words their distinctness is specific on any criterion excepting those of relatively close similarity in gross appearance, and individual overlapping in separate characters." He appears to forget, for the time being, that while the Cowbird group has a continuous, though over some unfavorable areas a sparse, distribution over the greater part of the North American continent, his "lack of evidence" is purely negative evidence; and that forty to fifty years ago scores, indeed hundreds, of vertebrate forms were ranked as unquestionable species which have since been found to intergrade as additional material came to light from intervening localities, and their subspecific status and complete intergradation with other forms demonstrated. When it comes to naming such slightly differentiated forms as these Cowbirds, surely the probabilities in the case, as established by experience, should receive some consideration, and be allowed at least as much weight as the absence of contrary evidence.

We are even more surprised that Mr. Grinnell should advocate abandoning the use of trinomials, on account of the "tendency among ornithologists nowadays to 'reduce' all congeneric forms in plastic groups to subspecific status." It may be admitted that here and there may be found an ornithologist who is given to excessive 'lumping,' but in general the attitude is reasonably conservative, and the excessive lumpers are not the standard bearers. Yet Mr. Grinnell takes the matter very seriously, continuing: "Indeed it might even be urged with reason that trinomials have outlived their usefulness, and that a pure binomial system, as consistently followed by Sharpe in his 'Handlist of Birds,' is adequate and decidedly less cumbersome." On this point we have already expressed ourselves with some emphasis in two reviews of this same 'Handlist,'¹ the gist of which is that such uniform treatment of all forms, whether known to intergrade or not, is grossly misleading, giving no clue to their real or 'genetic' relationships or to their relative distinctness and degree of differentiation. Sharpe, for instance, who is here cited as the model after whom we should pattern, recognizes hosts of forms as full species that really have no claim whatever to recognition in nomenclature, including forms that have even been abandoned by their proposers, and others condemned by the consensus of experts. If he had in each case, by the use of trinomials, given them the value currently assigned them, even the unwary layman would have some proper conception of their value and relationships, but now all have to him the same value and only the expert can make the proper discrimination under this uniform and "consistent" binomial method.

Mr. Grinnell has also described two new forms of the Bewick Wren group²

¹ Auk, XXVII, Jan. 1910, pp. 93-95 (cf. p. 95); Science, N. S., XXXI, pp. 265-267, February 18, 1910.

² Two heretofore unnamed Wrens of the Genus *Thryomanes*. By Joseph Grinnell. University of California Publ., Zoology, Vol. V, No. 8, pp. 307-309. February 21, 1910.

from California, and a new interior form of the Savannah Sparrow.¹ The latter is based, like the new form of Cowbird, on specimens from Humboldt County, Nevada, and named *Passerculus sandvicensis nevadensis*. It differs from *P. s. alaudinus*, its presumably nearest relative, in its extreme pale coloration. The type of *alaudinus* is stated to have come from California, and as the swarms of Savannah Sparrows that visit the coast region of California belong to the dark form, Mr. Grinnell has properly given the new name to the lighter colored interior form. He quotes Mr. Brewster as having previously called attention to the composite nature of the group of Savannah Sparrows hitherto referred to *alaudinus*.

With the addition of Mr. Grinnell's two new forms of the *Thryomanes bewicki* group, he claims to be "able clearly to distinguish . . . eight geographic races within the limits of the State of California, occupying as many separate areas of differentiation." These eight forms are here listed, with their ranges. The new forms are *T. b. marinensis*, occupying "the humid coast belt north of the Golden Gate and San Francisco Bay, in Marin and Sonoma counties," and *T. b. catalinae*, from Santa Catalina Island, southern California, differentiated from the adjoining mainland form *charienturus*, to which these island specimens were formerly referred. The former is separated from *spilurus*, as formerly circumscribed.

As the difference between "lumpers," "splitters," and "conservatives" is no doubt largely temperamental, we shall doubtless have all three classes always with us. But the downfall of trinomialism, if it ever comes, will be through its abuse, due to the temptation and facility it offers for ultra splitting. There are local differences that may be distinguishable to an expert that are often too trivial and too uncertain and insignificant to warrant recognition in nomenclature, since the added burden gives no commensurate return. The general facts may be recognized and recorded, and their significance noted, as is repeatedly done by good specialist who are not open to the charge of being lumpers. Mammals, for example, are far more plastic than birds, so much so that it is found necessary to pass over minor and extremely local variants in order not to reduce nomenclature, in the matter of subspecies, to a burden of names, a considerable portion of which would have not only little significance but would belittle the real function of nomenclature.—J. A. A.

Beebe on the Tail Feathers of the Motmots.²—It has long been known that the characteristic racket-shape of the central rectrices of certain species of Motmots is produced by the action of the bird itself in picking off the barbs from the subterminal portion of the feathers. That this act was performed by the bird purposely appeared so obvious that it has

¹ The Savannah Sparrow of the Great Basin. By Joseph Grinnell. *Ibid.*, pp. 311–316. February 21, 1910.

² Racket Formation in the Tail-Feathers of the Motmots. By C. William Beebe, Curator of Birds. *Zoologica: Scien. Contr. New York Zool. Soc.*, Vol. I, pp. 141–149, figs. 43–47. January 15, 1910.

almost universally been regarded as a case, unique among birds, of intentional self-mutilation, presumably for the purpose of ornamentation. Furthermore, as the rectrices exhibit a narrowing of the vane at the point where later denuded, this has been used by those who believe in the inheritability of acquired characters as evidence in support of their views.

As far back as 1885 Dr. Stejneger figured the tail of a specimen that had the middle feathers partly bare although the tail was only half grown. In his remarks he came very near the true solution of the problem, but his surmises were not quite correct in detail.

Mr. Beebe's conclusions are based on the study of a live specimen of *Momotus lessoni* and on the examination of skins of various species.

In the captive bird, on one occasion, the growing rectrices were found to be already denuded while yet enclosed in the sheath; in this case, therefore, any trimming by the bird, intentional or otherwise, was wholly precluded. While in this particular instance, the denudation was premature, due probably to the birds' low vitality, yet this condition is approached by another species, *Eumomota superciliaris*, in which the shaft is stripped for a greater distance than in its allies. Here the dropping of the very short barbs occurs almost as soon as the growing feather is free from the sheath and long before it has reached its full length.

Upon close examination of the tail feathers of *Momotus mexicanus* and other species it was found that in the freshly grown feather the portion later denuded differs from the normal part of the vane in having the basal part of the barbs almost free from barbules and the barbs themselves slightly weaker than usual. This naturally renders the barbs liable to break away from the shaft at the point of connection.

Mr. Beebe concludes that the trimming of the feathers is not intentional on the bird's part, but is merely incidental to the ordinary preening of the plumage, and that no inheritance of acquired characters is necessary to explain the constriction of the vane, both this feature and the basal degeneration of the vane being congenital and due to some wholly unknown cause.—W. DE W. M.

'Cassinia.'—'Cassinia, A Bird Annual,' has again promptly made its appearance, this being the tenth issue of the 'Proceedings' of the Delaware Valley Ornithological Club of Philadelphia under this title, and forming No. XIII of the Proceedings of this active organization, which on January 6 of the present year celebrated its twentieth anniversary. As usual, it sticks to its text, the "Ornithology of Pennsylvania, New Jersey and Delaware," but, under the continuous editorship of Mr. Stone, contains, also as usual, matter of wide interest. The editor contributes another of his happy sketches of early Philadelphia ornithologists, this time dealing with the late Dr. Thomas B. Wilson, so well known as the liberal patron of the Academy of Natural Sciences of Philadelphia, to whose gifts the Academy owes its almost unrivalled natural history library and the Rivoli, Gould, and other notable collections of foreign birds, purchased

and presented to the Academy some fifty to sixty-five years ago. Although an investigator of marked ability in several fields of scientific research, he published almost nothing, but imparted freely his discoveries to others for publication. While his name is thus missing from the list of eminent naturalists, it stands high on the roll of the patrons of science.

Other papers in the present number of 'Cassinia' are: 'The D. V. O. C. and its Twentieth Anniversary,' by George Spencer Morris; 'Duck Shooting on the Coast Marshes of New Jersey,' by I. Norris De Haven, with supplementary matter by Mr. Stone; 'Cruising through the New Jersey Pine Barrens,' by J. Fletcher Street; 'On the Nesting of the Broad-winged Hawk and Goshawk in Pennsylvania' (with two half-tone plates), by Robert P. Sharples; 'Breeding Birds of Passaic and Sussex Counties, New Jersey,' by William L. Baily (an annotated list of 94 species); 'Report on the Spring Migration of 1909,' compiled by Witmer Stone; 'Abstract of Proceeding of the Delaware Valley Ornithological Club, 1909'; 'Bibliography for 1909,' comprising titles of papers relating to the birds of Pennsylvania, New Jersey and Delaware, and of other ornithological papers by members of the Club; and a list of the officers and members of the Club. (For further notice of the celebration of the twentieth anniversary of the Club, and a list of the officers of the Club for 1910, officially communicated, see below under 'Notes and News.')

— J. A. A.

J. Grinnell on the Birds of the Prince William Sound Region, Alaska.¹—

This is a report on the birds collected by Miss Annie M. Alexander's third expedition to Alaska, made in the summer of 1908, the party being composed, in addition to Miss Alexander, of Joseph Dixon, Edmund Heller, A. E. Hasselborg, and Miss Louise Kellogg. The material obtained, on which the present report is based, consists of the note-books of the collectors, 500 bird skins, ten sets of eggs and a few nests, now in the University of California Museum of Vertebrate Zoölogy, as a gift from Miss Alexander. This report is preceded by a similar one by Mr. Edmund Heller on the mammals, in which the itinerary, collecting stations, and the physiography of the region are described in detail, including the islands in Prince William Sound and the adjoining mainland coast. The life zones represented in this district are the Hudsonian and the Arctic-Alpine. The fauna is naturally scanty, the mammals obtained numbering only 16 species, and the birds collected or noted, 89 species, specimens of 86 of which were taken.

The introduction to Mr. Grinnell's paper on the birds contains a numbered 'Check-list of the Species Observed,' followed by the very fully annotated "general account," a discussion of the composition and origin of the avifauna of the Prince William Sound district, and of "melanism in the

¹ Birds of the 1908 Alexander Alaska Expedition, with a note on the Avifaunal Relationships of the Prince William Sound District. By Joseph Grinnell. University of California Publ., Zoölogy, Vol. V, No. 12, pp. 361-428, pll. xxxii-xxxiv, 9 text figures. March 5, 1910.

endemic species." The following six subspecies are described as new: (1) *Canachites canadensis atratus*, (2) *Lagopus rupestris kelloggæ*, (3) *Ceryle alcyon caurina*, (4) *Dryobates pubescens glacialis*, (5) *Passerella iliaca sinuosa*, (6) *Penthestes rufescens vivax*.

In this district of excessive humidity Mr. Grinnell notes "an increase in the extent of the black markings and a darkening of the shades of brown and green, and a reduction in the general size, and disproportionate shortening of the wings and tail," in comparison with the species of the Sitkan fauna to the southward and of the Yukon fauna to the northward, these features characterizing, in varying degree, the new forms here described. The "four obvious environmental conditions," as compared with the interior are stated to be (1) an extreme amount of precipitation, (2) a high relative humidity of the atmosphere, (3) a large percentage of cloudy days, and (4) a more uniform temperature, due to impeded radiation. He takes occasion to explain that the "melanism," or increased intensification of color, is not due directly to precipitation but rather to cloudiness and excessive humidity — as we had supposed was generally recognized. Also that the "melanism" is inherited, as shown by the newly hatched young, and not acquired during the life of the individual. This and allied questions are discussed at some length near the close of the paper, which will be welcomed as a valuable contribution to the ornithology of a hitherto little known but intensely interesting area.— J. A. A.

McGregor's 'A Manual of Philippine Birds.'¹— A manual of Philippine birds, giving descriptions of the species in convenient form, has evidently been long needed by students of Philippine ornithology, especially those resident in the Philippine Archipelago where libraries well stocked with ornithological works are naturally few. Mr. McGregor has therefore done a good service in supplying this need. The work has been issued in two parts, continuously paged, and may thus be bound together as a compact, handy volume of nearly 800 pages. Keys and diagnoses of the higher groups, with keys to the species, facilitate its use, and sufficient bibliographical references are given under the species to enable the reader to refer to original sources for further information. The work is well planned and carefully prepared, and will thus bear comparison with the best standard works of its class.

The technical name of the species is followed by an English name, such references to the literature as are deemed necessary, including the synonymy, and by "such native names as seem to be commonly used with some degree of accuracy." Then is given the distribution, by islands in alphabetic sequence, with the authority for the records. The descriptions include the external characters and measurements of usually both young and adult

¹ A Manual | of | Philippine Birds | By | Richard | C. McGregor | Part I | Galliformes to Eurylæmiformes | [Seal] Manila | Bureau of Printing | 1909— Svo, pp. i-x + 1-412. "Actual date of publication, April 15, 1909." Part II, Passeriformes. Pp. xi-xvi + 413-769. "Actual date of publication, January 31, 1910."

with the sexual and seasonal variations, and, when available, a fairly full biographical account of the species. Although the work is based on a large collection of Philippine specimens, and on extended field experience in the islands, the author has been compelled to rely on other works for such of the species (about 150), particularly among the water birds, as were unrepresented, or inadequately represented, in the 8000 specimens of Philippine birds in the Museum of the Philippine Bureau of Science, due credit of course being given for the borrowed material. Much previously unpublished biographical matter is taken from a manuscript work on Philippine birds prepared some years ago by Messrs. Frank S. Bourns and Dean C. Worcester for publication by the Minnesota Academy of Sciences. The classification is that of Sharpe's 'Handlist,' which "is followed as both convenient and well known." The 'Handlist' is also followed in the use of binomial names for all the forms recognized, so that the Philippine ornith here numbers 739¹ "species," there being no subspecies.

As already said, Mr. McGregor's 'Manual' is opportune and will be of great use to all students of Philippine ornithology.—J. A. A.

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¹ These are consecutively numbered in the text, while 8 more are added in the "corrections and additions" at the end of the volume, increasing the total number to 747.

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NOTES AND NEWS.

HENRY HILLYER GIGLIOLI, an Honorary Fellow of the American Ornithologists' Union, died at Florence, Italy, December 14, 1909. A notice of his life and ornithological work will be given in a later number of this journal.

JOHN FARWELL FERRY, an Associate of the American Ornithologists' Union, died at St. Luke's Hospital, Chicago, February 11, 1910, of acute pneumonia, at the age of 32 years. He was born October 12, 1877, and was a grandson of John V. Farwell, a wealthy dry goods merchant, and though reared in affluence, he preferred an outdoor life to the counting room of a great business institution, having early developed a strong love for natural history. After preparation for college at Andover, Massachusetts, he took a civil engineering course at the Sheffield Scientific School at Yale, graduating in 1901. He remained in New Haven till 1902, acting as secretary of the Young Men's Christian Association. For the next two years he was a traveling agent for the American Cereal Company for the New York State territory. Finding, however, a commercial career distasteful he became associated with the U. S. Biological Survey as a field collector, under the direction of Dr. C. Hart Merriam, spending one season in California collecting birds and mammals. On February 1, 1906, he joined the staff of the Field Museum of Natural History as assistant in the Department of Zoölogy, under Prof. Charles B. Cory, curator, and later made a number of expeditions in the interests of the Field Museum. In 1907 he visited various sections of Illinois, and in January, February, and March, 1908, visited Panama and Costa Rica, where he secured a valuable collection of birds and mammals. From Costa Rica he went to Venezuela, and made collections on the adjacent islands of Curacoa, Bonaire, and Aruba. In January, 1909, he again visited the islands off the coast of northern South America and spent several months exploring the islands

of Tortuga, Blanquilla, Los Hermanos, Testigos, Margarita, Los Roques, and Orchilla. Many of these islands had not been previously visited by a collector. Eight new species and subspecies of birds were procured, one of which was named by Mr. Cory in his honor, *Cæreba ferryi*. In May and June, 1909, he visited the Quill Lake region, Saskatchewan, for the purpose of securing various species of birds in breeding plumage, with their nests and eggs, for use in the preparation of a series of exhibition groups representing the bird life of that region, in which undertaking he was most successful. His paper on the Summer Birds of Saskatchewan in the present number of 'The Auk' (pp. 185-204) is based on observations and collections made during this expedition. At the time of his death he was preparing a paper on the birds of Costa Rica, based on his visit to that country in 1908. He was an enthusiastic collector and excelled in field work. His publications in ornithology include papers based on his field work in California, Illinois, Venezuela, and Saskatchewan, as follows:

1. Ornithological Conditions in Northeastern Illinois, with Notes on Some Winter Birds. *Auk*, XXIV, April, 1907, pp. 121-129.
2. Winter Bird Notes from extreme Southern Illinois. *Auk*, XXIV, July, 1907, pp. 281-286.
3. Further Notes from extreme Southern Illinois. *Auk*, XXIV, Oct. 1907, pp. 430-435.
4. Notes from the Diary of a Naturalist in California. *Condor*, X, pp. 30-44, 1908.
5. A Month's Bird Collecting in Venezuela, *Condor*, X, pp. 225-230.
6. Birds Observed in Saskatchewan during the Summer of 1909. *Auk*, XXVII, April, 1910, pp. 185-204, pll. x-xii.

Mr. Cory's recent paper on 'The Birds of the Leeward Islands' (see *Auk*, Jan., 1910, pp. 99, 100) was based largely on the material and field notes of Mr. Ferry taken during his two trips (as noted above) to these islands.

Mr. Ferry was a man of exceedingly attractive personality, warm-hearted and enthusiastic, and had his life been spared he would doubtless have soon attained a position of some eminence in ornithology.¹

THE following respecting the Kuser Asiatic Expedition was received too late for use in the January issue of this Journal.

On December 29, 1909, Mr. C. William Beebe, Curator of Birds in the New York Zoological Park, sailed on the 'Lusitania' for London, accompanied by Mrs. Beebe. Mr. Bruce Horsfall, artist, followed on a later steamer. After several weeks' study of the pheasants in the British Museum, Mr. Beebe will proceed direct to Ceylon and India, where field studies will be made of the wild pheasants and jungle fowl. The

¹ This notice is based mainly on information kindly supplied by Mr. Charles B. Cory, Curator of Zoölogy at the Field Natural History Museum, Chicago, and on further details contributed by Mr. R. M. Barnes, of Lacon, Ill., who was one of Mr. Ferry's companions on the Saskatchewan trip in 1909.

object of the expedition is to obtain data, written, photographed, and painted, concerning the ecology of the Phasianidae. The tentative itinerary includes the Himalayas, Burma, Sumatra, Java, Borneo, Cochin China, Palawan, Formosa, Eastern China and Japan, the party returning by way of Honolulu and San Francisco.

Mr. Beebe has been granted a twelve month's leave of absence without pay, and in his absence his correspondence and the continuing of his experimental work at the Zoölogical Park will be carried on by Mr. Lee S. Crandall.

The results of the expedition will be published in monographic form, illustrated with colored plates of all the more important species of pheasants, by Charles R. Knight, Louis Agassiz Fuertes and Bruce Horsfall. The treatment will be rather from the point of view of the ecology of the living birds and their care in captivity, than systematic and anatomical.

Living specimens of Argus and other rare forms will be brought back, together with a collection of skins and studies for backgrounds.

The widespread interest in pheasants in this country and the lack of knowledge of their habits in a wild state seem to indicate a field for such a work.

The expedition will be made, and the monograph published, under the auspices of the New York Zoölogical Society. Credit for the inception and the entire financing of the expedition and monograph, is due to Colonel Anthony R. Kuser of Bernardsville, New Jersey. The success of the undertaking will be altogether due to that gentleman's enthusiastic love of birds and disinterested generosity.

Mr. Beebe is in charge of the bird collection and the experimental station at Faircourt Aviaries on Colonel Kuser's estate, and the painting and all other monographic work will be carried on at that place.

THE DELAWARE VALLEY ORNITHOLOGICAL CLUB, whose organization was announced in 'The Auk' for July, 1890 (Vol. VII, 298, 299) celebrated the twentieth anniversary of its founding on January 6, 1910, at the Academy of Natural Sciences, Philadelphia. Forty-eight members were in attendance and Dr. A. K. Fisher was present as the guest of the Club. Addresses were made by Dr. Fisher, Dr. Wm. E. Hughes, Mr. Samuel N. Rhoads and Mr. Witmer Stone. In the twenty years of its existence the Club has done much to develop ornithological interest in the region covered by its activities. One hundred and eighty-one men have been enrolled as members, a volume on the Birds of Eastern Pennsylvania and New Jersey and nine annual numbers of *Cassinia* have been published, a total of 981 pages and 28 plates. Three hundred and thirty-five meetings have been held, with an average attendance of twenty for the past fifteen years. The officers of the Club elected for the ensuing year are: President, Samuel N. Rhoads; Vice-President, Stewardson Brown; Secretary, J. Fletcher Street; Treasurer, Samuel Wright.

THE offer of a reward for the discovery of any surviving representative of the Passenger Pigeon, as published in the last number of this journal (Jan., 1910, p. 112), naturally suggested to some minds that this offer would prove a good method of exterminating the last survivors, should any still remain, of this noble bird. But Dr. C. F. Hodge, of Clark University, Worcester, Mass., now in charge of the investigation, in reporting progress in a recent issue of 'Forest and Stream' (for Feb. 12, 1910, pp. 253, 254), seems to give assurance that no such result need be feared. After stating that the total amount subscribed has reached the sum of \$3,045, he says: "None of this money has been paid in and none will be asked for until nests have been reported and confirmed; or until office expenses have exceeded \$100 which Dr. Hodge has agreed to contribute to the work.

"The following points should also be emphasized:

"1. All the above awards are offered solely and only for exclusive and confidential information of the location of an undisturbed nesting pair or colony of Passenger Pigeons discovered during the nesting season of 1910.

"2. No one connected with this work wishes possession of any birds alive or dead. We are working solely for the absolute and universal protection of the free wild pigeon.

"3. We can give no information as to the value or price of skins, eggs or mounted specimens.

"4. All offers — that we know of — for freshly killed birds have been withdrawn. . . ."

It is further stated that nine localities have been reported where pigeons are said to have nested in 1909. These include points in New Hampshire, Massachusetts, New York, Pennsylvania, Wisconsin, Illinois, and Kansas. None of the information secured as to nesting sites or places where pigeons have been found will be published until after the nesting season of this year.

THE following sad tale of the wholesale destruction of seabirds by Japanese poachers at Laysan Island and at Lisiansky Island needs no comment. It is taken from the 'Army and Navy Register' of February 19, 1910, and is based on an official report to the United States Treasury Department by the Commander of the steamer 'Thetis' of the U. S. Revenue-Cutter Service.

"A very interesting report has been received at the Treasury Department from Captain W. V. E. Jacobs, U. S. Revenue-Cutter Service, commanding the Thetis, relative to the arrest of Japanese poachers and the seizure of birds and plumage on Laysan and Lisiansky islands of the Midway group.

"On the Island of Laysan fifteen Japanese subjects were found occupying and using for warehouses the thirteen buildings grouped on the west side. One of the buildings was full of the breasts of feathers of birds in bulk; another was two-thirds full of loose bird wings and a number of stuffed birds of various species, while on the sand adjacent to the buildings were about 200 mats held down by rocks, under which were laid out masses

of bird wings in various stages of curing. Two armed boat crews from the *Thetis* landed on the island under the command of Second Lieutenant George E. Wilcox, who arrested the fifteen Japanese subjects and seized all the plumage. There were taken 65 bales of birds' wings, 28 large and 3 small bags and 13 bales of feathers, and two boxes of stuffed birds. It is estimated that the number of wings was 119,000. It appears that the Japanese killed the birds during daylight with a stick and then cut off their wings and plucked them.

"The *Thetis* then proceeded to Lisiansky Island, where an anchorage was found on the morning of January 19 last. An officer and an armed boat crew were sent ashore at once to investigate conditions there. A party of eight Japanese was arrested, and the amount of plumage seized consisted of nineteen bales of bird feathers, one box of stuffed birds, one box and sixty-five bags of birds' wings. The number of wings was estimated at 140,400. Four small buildings were found on this island, one of which was used as a dwelling by the Japanese. A number of other islands was visited by the *Thetis*, but these were the only two where poaching was found to be carried on.

"From information obtained through interpreters it was found that the Laysan party was at work on the island from April 17, 1909, to January 17, 1910, a period of nine months. In August last the island was visited by a Japanese vessel, which brought nine new men and took away nine of the old party. The amount of plumage shipped from Laysan in August appears to have been 30 bales of feathers, aggregating about one ton, and 70 bales of wings, aggregating 128,100 bird wings. The same procedure took place at Lisiansky Island, a Japanese vessel reaching there with a relief party in August. The number of bird wings taken from this island in August is estimated at 108,000.

"The system followed in the process of curing the bird wings is, when the wings are cut off, the bone is removed and a small amount of lime is sprinkled on them or rubbed into them. They are then spread out on the sands to dry. If the weather continues good, the wings are cured in from four to five days and are then packed into bales. During the process of packing naphthaline powder is sprinkled over the layers, and when filled the bales are sewed up and are then ready for shipping. If rains occur during the curing time, the wings are covered with several thicknesses of mats, which are held in place by rocks. At the time of the arrival of the *Thetis*, being the rainy season in those latitudes, a considerable number of wings was found under mats in various stages of curing."

A press despatch from Honolulu, dated March 16, 1910, states that the twenty-three Japanese poachers captured by the officers of the '*Thetis*' were sentenced the preceding day in the Circuit Court to twenty-four hours imprisonment, the judge being satisfied that they were ignorant tools of others "higher up," whose indictment will now be attempted.

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MIGRATION OF THE PACIFIC PLOVER TO AND FROM THE HAWAIIAN ISLANDS.

BY H. W. HENSHAW.

SINCE primitive times the phenomenon of Bird Migration has excited peculiar interest, and although much of the mystery formerly attaching to it has been dispelled by the prosaic facts brought to light by modern investigations, it still presents enigmas to stimulate the imagination and invite study. *How* birds migrate is now beginning to be understood, and the present practice of tabulating dates of arrival and departure and collating the facts gathered by numerous observers in different parts of the country is likely ere long to give us the solution of many as yet unsolved problems. *Why* birds migrate is quite another question, likely to resist satisfactory solution for some time to come if, for no other reason, than from the very nature of the case we can have comparatively few facts to guide us, and speculation must largely take the place of deduction.

When we consider the number of miles traveled, the widely different characters of the regions chosen for summer and winter abodes, and the perils necessarily attending the passage between them, the migration of no other of our birds appears so wonderful as that of the Golden Plover. In part the migration route of the eastern form of the Golden Plover (*Charadrius dominicus*) is well understood, and those interested in the subject are referred to a sug-

gestive paper by Austin H. Clarke¹ on the probable method by which the bird is guided safely across the Atlantic from Nova Scotia to South America. In the present paper will be presented such facts in regard to the migration of the Pacific Plover (*Charadrius dominicus fulvus*) as the author was able to gather during his stay in the Hawaiian Islands — from 1894 to 1904, together with certain deductions therefrom.

Isolation of the Hawaiian Islands.— It may be premised that no other part of the earth's surface is so far distant from continental areas as the Hawaiian Archipelago. The islands are about 2000 miles from the coast of California on the east; about the same distance from the Aleutians on the north, and the Marquesas group on the south; and not much further from Japan, reckoning from the outermost of the chain of low islands and reefs which stretches from Hawaii some 700 miles towards the Asiatic coast. It is important to note, however, that, assuming the availability of these islands as stepping stones for birds, there would still be an interval of more than 2000 miles between the most northwestern of the chain and Japan. Hence, if we reject as untenable the theory of a sunken southern continent, of which the Hawaiian Archipelago is the northernmost and now the only visible remains, the original introduction into Hawaii of its mammals, birds, insects and plants presented greater difficulties than were presented to the fauna and flora of any other part of the world.

So remote and isolated have these islands been since their formation, and so few and uncertain Nature's carrying agencies — the birds, the winds, and the ocean currents — that after the islands were thrust up out of the sea ages must have elapsed before they received the parent stocks of the many and diverse forms of plant and animal life peculiar to them.

That the difficulties of stocking the archipelago with life, great as they must have been, were not insurmountable is proved by the fact that enough waifs found their way to the islands to clothe them with verdure and stock them with animal life. As a result of the competitive struggle which followed upwards of 900 species of plants, numerous insects, including many distinct genera, seven

¹ Auk, 1905, pp. 134-140.

species of lizards, more than fifty species of birds, and at least two mammals, finally made good their foothold on the islands and flourished, some more, some less, according to their nature and adaptability.

Avifauna of the Hawaiian Islands.—Among other inhabitants of the islands are some 45 species of passerine birds, one hawk, an owl, a mud hen, a gallinule, a stilt, a duck, a goose, and a few others. All of these I pass by for the moment, and come to certain migrants from North America which regularly journey between the islands and the continent both spring and fall. Four of these migrate in great numbers, viz., Golden Plover, Turnstone, Wandering Tattler, and Bristle-thighed Curlew; the Shoveller Duck and Pintail also visit the islands in considerable numbers. In addition to these are perhaps a dozen other ducks and geese whose occurrence in the islands is more or less casual, and the same remark applies to a dozen or fifteen wading birds. Altogether, including the regular migrants, the casuals, and the accidentals, the visiting birds make quite a respectable winged army.

Islands accidentally discovered by present migrants.—It is not supposable that birds ever put to sea to seek unknown lands by a hitherto untraveled route. We know that millions of birds of many species are annually, or semiannually, driven out to sea by storms, especially species that migrate near the sea coast. Many, perhaps most, of these storm-driven waifs never see land again, but become wing weary and find watery graves. Some few, however, reach safe havens in oceanic islands, and in this way no doubt such islands have received their bird colonists.

That the Golden Plover, like the other migrants from the North American coast, discovered Hawaii accidentally is hardly open to doubt. I see no necessity for presupposing the existence of sunken continents, or of ancient continental extensions, to account for the presence on the islands of the Plover and other North American birds, like the Night Heron, Gallinule, and Coot. The presence there of the weak-winged passerines is another matter, and it must be admitted that proof of the existence of an ancient continent stretching from the islands southward towards Australia would simplify a very difficult problem. So far, however, as our North American birds are concerned, it need be assumed only that long

ago some thousands of Pacific Plover and other species, when following the usual southward migration route along the Asiatic coast in fall were accidentally driven to sea, and that a greater or less number were able to maintain themselves on the wing long enough to make a lucky landfall of the low islands to the northwest of Hawaii. The flight from Japan to the nearest island eastward would involve a flight about as prolonged as that from the Aleutian Archipelago to Hawaii, or some 2000 miles. The chain of low islets once gained, it would be but a question of time for migrants, step by step, to reach the larger islands of Hawaii, 2000 miles or so to the eastward. After wintering, a sufficient number may have essayed the flight back across the ocean to the Asiatic coast the following spring, and then northward to their Siberian breeding grounds with their Asiatic fellows. Having once discovered the islands and learned their suitability as winter quarters, they would no doubt return over the same route, and thus in time establish a regular fly line or migration route from the Asiatic mainland to the islands. Later, as the position of the islands became better known, the part land, part water route would naturally be exchanged for a shorter all water route. It is possible, however, that the old Asiatic route has never been wholly abandoned, and that it is still favored by a certain number of the island migrants; for plover, turnstones, curlew and tattlers have been observed on Laysan, about 600 miles northwest of Hawaii, late in May. These birds were probably about to migrate, but it is of course impossible to tell whether they were headed directly for America or for America via Asia.

Absence of fog.—The original discovery of the Hawaiian Islands by birds was undoubtedly greatly facilitated by the fact that, although fog is common on the mountains at altitudes of 5000 feet and upwards, it never occurs at sea level; and as its absence favored the original avian discoverers so it continues to favor annual migrants.

Date of discovery of the Islands by American migrants.—As to the length of time the Pacific Golden Plover and its fellow migrants have been visiting the Hawaiian Islands, or when they first discovered the group, it were idle to speculate. Their arrival probably antedated by thousands of years that of the Natives, which is supposed to date back only some twenty centuries. Certain of

the bird colonists from America, like the owl, night heron, gallinule and coot, have resided in the islands so short a time that they have changed very little from their American ancestry. Others, like the hawk, stilt, and goose, have changed more, and hence presumably have been residents of Hawaii a longer time. Changes of color, proportion, and size, however, be they great or small, cannot be used as time measures, except in the vaguest way, since practically next to nothing is known of the length of time they require. We are perhaps justified in concluding that none of the above species have changed sufficiently to call for isolation from their American ancestors for periods to be reckoned by geologic intervals rather than by thousands of years.

Spring migration of Plover.—The impulse to migrate in spring is by no means simultaneous among all the plover that winter in the islands, or that winter on any one island; nor apparently is it the rule for large bodies of plover to migrate together. The plover and turnstones, probably often in mixed companies, begin to leave for the north early in April, and the migration continues till at least the latter part of May (probably even later), being dependent apparently on the state of preparedness, or the inclination of individual birds.

When the time to migrate comes, small parties, from a dozen or even less, to flocks of 200 or more, strike boldly out to the northward, apparently without hesitancy or doubt of the result. Mr. Haswell of Papaikou, which is on the coast about 15 miles north of Hilo, soon after daybreak during the early days of April, 1900, saw several flocks rise to a great height and, after widely circling about a few times as if to orient themselves, finally disappear in a northerly direction.

It is probable, however, that day migration is not the rule with plover and other shore birds. Apparently it is more usual for the flocks to feed by day and leave just before nightfall, as do many other birds in different parts of the world. Mr. R. C. L. Perkins states that several times he "witnessed these departures always late in the afternoon, or just before dark." He adds: "When about to return to the north the plover frequently assemble in very large flocks, and before setting out on their journey, rise to an enormous height in the air, even beyond the range of sight. I have

once seen two such flocks start from the same point, the one following the other after an hour's interval." (Fauna Hawaiiensis, Vol. I, pt. iv, p. 449, 1903.)

It is interesting to note that plover are occasionally sighted from passing ships. Naturally they attract little attention and never are recorded in the ship's log. I found one ship captain, however, who remembered to have seen a flock of plover passing north in spring. The date was uncertain but the ship was about midway between San Francisco and Hawaii, and the plover were steering a course which would carry them to the neighborhood of the Aleutians.

Where data are so scarce and difficult to obtain it is worth noting, as bearing on the season and course of the spring migration of island birds, that Townsend captured a Pacific Plover, which boarded the 'Albatross' May 19, 1890, when 600 miles south of Kadiak. This bird was probably an island migrant nearing the end of its long flight. Elliott, also, speaking of the turnstone, states that he "met with it at sea 700 miles from the nearest land, flying northwest towards the Aleutian Islands, my ship being 800 miles west of the Straits of Fuca."

Physical condition of spring migrants.—During the last two months of their stay in the islands both the migrating plover and turnstones get very fat, and it is probable that individuals that are not in good condition do not attempt the flight, or if they do, do not survive the attempt. Towards April most plover seem to be in full breeding plumage, and I feel sure that none of the birds assuming the breeding dress remain behind, unless sick or wounded. There is, however, a small contingent, both of plover and turnstones, that summer in the islands, and these appear to consist wholly of immature individuals, which, as a rule, are thin and not in good trim.

Speed of migrating Plover.—The migration of plover over a wide ocean involves two factors: (1) Ability to go without food for the time necessarily consumed in the flight. (2) Ability to make the journey without resting and yet not overtax the physical powers. As stated above, apparently all the migrating birds in spring are in good order, and some of them, especially the males, are exceedingly fat. They are thus in condition to exert their utmost powers for a considerable period and to do without food. I know of no actual tests of the speed of plover. From my own observations

I believe that when not fatigued the plover can easily enough fly 50 to 75 miles an hour, but it is doubtful if such speed can be maintained for any great length of time. I am confident, however, that a speed of 40 miles an hour is well within the bird's powers. At this rate the flight from Hawaii to the Aleutians, a distance of about 2000 miles, would consume a little more than two days; or, allowing a speed of 35 miles an hour, the time occupied would be two days, 9 hours. At first thought it does not seem possible for plover to fly continuously for so many hours without rest and food; yet the above statement cannot be far from the truth. If the birds fly faster, the journey requires less time but the expenditure of more vital force; if, slower, they husband strength at the cost of time. In either event the result would be about the same. Of the extreme limit of the plover's endurance in continuous flight we know nothing; nor do we know what proportion of the birds that start across the ocean are successful in making the flight. That the effort is too much for many individuals is hardly to be doubted, especially for young of the year, which are comparatively weak and unpractised of wing.

A leaf from the notebook of Dr. E. A. Mearns is of interest in this connection. On the 9th of October, when on a transport bound for San Francisco, and one day out of Honolulu, Mearns noticed a lone plover, which joined company with the ship for nearly two days. On the 10th his note book records that the bird was still circling around and above the ship, as if designing to come aboard. Sometimes it flew close alongside and whistled plaintively. Once it rose very high in air and flew out of sight, probably trying to sight land on which to rest, but it soon returned from its fruitless quest. At 5 P. M. on the 10th it seemed weak and tired, but was still flying feebly alongside, its call notes continually growing fainter with waning strength. It was lost sight of at dusk, and was never seen again, but its fate is only too certain.

It may seem remarkable that this tired wanderer apparently never alighted on the water to rest. However, I recall only one instance in which an unwounded plover has been known to alight on the water and again take wing.¹ In considering this question it

¹ Rothschild, *Avifauna of Laysan*, pt. 1, xiv, 1893.

must not be forgotten that neither by birth nor habits is the plover a swimmer. It is a true wader, and though, like all of its family, it can swim when compelled to and can even alight on smooth water and again take wing, it does so probably only in very exceptional instances, and perhaps never when in migration.

Could we assume that this particular individual made a direct course from the Aleutians to the point where intercepted by the transport, the incident would be valuable as affording a tolerable idea of the limit of the endurance and wing power of a plover. The bird, however may have lost its way and have taken a very indirect course to the point where it was first seen from the ship. Unaware of the proximity of the islands to which it was bound, and which it might have reached in a few hours more, it became confused, and made the fatal mistake of following the ship's course. Before it finally succumbed to fatigue, it followed the ship for about 500 miles. Thus at the least calculation it flew 2500 miles before it succumbed to fatigue, and probably very much further.

Time of arrival of migrants in Alaska.—As the migration of the plover (and also the turnstone) from the islands begins during April and continues till into May, and possibly even later, the birds should arrive in Alaska at corresponding dates, the flight probably consuming not much more than two days. As a matter of fact, however, the mainland breeding grounds of the plover in Alaska are snow bound till well into May, and Turner states that the Pacific Plover does not arrive at St. Michael till about June 1, a statement corroborated by Nelson. Although there is no necessary precise correspondence between the breeding time of the Pacific Plover in Siberia and in Alaska, it is interesting to note the statement of Seebohm that the plover arrives on the Yenesay River, Siberia, June 5; and, referring to water birds generally, he adds that "very few eggs are laid on the tundra before the last week of June." (Geog. Dist. of the Charadriidæ, 1888, p. 58.) Where the plover and turnstone, which leave Hawaii early in April, spend the interval till the melting snow bares the hillsides in Alaska and exposes the previous season's crop of *Vaccinium* and *Empetrum* berries, upon which the plover in spring chiefly feed, is left to conjecture. As the Aleutian chain is nearly 1200 miles long, however, and as comparatively little is known of its birds in spring, it is possible that early

migrating shore birds sojourn on them until advancing summer prepares the mainland for their occupancy. This conjecture is to some extent supported by the statement by Elliott that a few straggling plover land on the Pribilofs in April, or early in May, on their way north to breed, but never remain long.

Breeding range of the Golden Plover.— Without doubt the chief breeding ground of the Pacific Plover is eastern Siberia, but a considerable number breed on the American coast of Bering Sea from the vicinity of Bristol Bay (where taken by McKay at Nushagak, June, 1881) to near Bering Straits. The plover breeding on Kotzebue Sound, north of the Straits, is *dominicus* (Grinnell), as also is the one breeding at Point Barrow (Murdock). Apparently *fulvus* does not breed at all in the interior of Alaska, these regions being occupied solely by *dominicus*. It concerns us to note in passing that, unless Palmén is mistaken in his identification, *dominicus*, not content with its wide habitat in the interior of Alaska, crosses the Straits, and breeds on the Chukchi Peninsula.¹ Thus the summer ranges of the two forms actually inosculate, the Asiatic form crossing to America and the American form crossing into Asia — an apparent anomaly in the case of geographic forms.

Hawaiian Plover breed in Alaska.— It is of course impossible to absolutely identify the Pacific Plovers breeding on the coast of Alaska with the winter visitors to Hawaii, yet there are certain facts tending to show that they are the same. (1) It is to be noted that of the winter visitors to the Hawaiian Islands not one is an exclusively Asiatic species. (2) The form of the Wandering Tattler which regularly migrates to and from the Islands is not the Asiatic form *brevipes* but the American form *minor*. (3) There is evidence that the Bristle-thighed Curlew, also a winter visitor to the islands, breeds in Alaska, while it is not known to breed in Asia. As the two last named birds, which breed exclusively in America so far as known at present, regularly winter in the islands, it is a fair inference, in the lack of evidence to the contrary, that the plover and turnstone, as also the other waders which winter casually in the islands, as the Sanderling, Pectoral Sandpiper, Sharp-tailed Sandpiper, Jack Snipe, Knot and others, also come from Alaska and not from Asia.

¹ Palmén, Vega-Exped. Vetensk. Iak-t., Vol. V, 1887, p. 342-348; also Stejneger Auk, 1888, pp. 308-310.

Fall migration of Plover.—For some reason or other plover appear to arrive in the Commander Islands in fall very late, according to Stejneger, not till after the 15th of September; the last ones were observed in 1883 on the 28th of October. The turnstone on the other hand touches the Commanders on its return trip much earlier, according to the same author, as early as the last part of July.

Arrival of Plover in Hawaii in Fall.—Passing now to Hawaii, a small number of plover and also turnstones return there as early as the middle, or the latter part, of August. By inference these are the birds which leave for the breeding grounds earliest in spring, and so are the first to complete their parental duties. Or, the first arrivals in Hawaii may be individuals which made the journey to Alaska but for some reason did not breed; or whose nests were broken up; or whose mates were killed, for the Arctic tundras have their bird tragedies as have other lands. Just as the turnstones reach and leave the Pribilofs in small straggling flocks, so they and the plover arrive in Hawaii; and it appears further that in fall, as in spring, they get into good condition for the flight, and then leave in no regular order nor at any set time, but just as the impulse seizes them.

Between the dates of early departure from Hawaii in spring and of early arrivals in fall there is thus an interval of some four months or more, quite long enough to permit the pairs to attend to their parental duties, to get into condition for the return journey, and to make the trip. So far as my observations extend all the first arrivals in Hawaii in fall, both plover and turnstone, are adults in breeding plumage. I may add that they are invariably in good flesh and that some are very fat. Later arrivals, however, no doubt young of the year, are comparatively poor in flesh and require considerable time to fatten.

How migrants find their way across the ocean.—It thus appears that thousands of birds, large and small, make a two thousand mile flight from Alaska to Hawaii in fall and return in spring. To answer the question how they find their way across the trackless waste we must leave the realm of fact and enter that of speculation. Ocean migration routes have generally been plausibly accounted for on the theory that the present fly lines were established ages ago

when the land connections were very different, and when, by means of continental extensions and islands now sunken, part land, part water routes were easily followed. As such changes as the raising or depressing of continents are very gradual and extend through long periods, succeeding generations of migrants are supposed to have scarcely noticed the difference, and, even after the old land marks had disappeared, to have been able to follow the ancient routes through the power of transmitted habit.

This explanation, however, does not apply to the case of the Hawaiian migrants, since there is no reason to suppose that the isolation of the Hawaiian Islands in relation to continental areas was ever less complete than now; and, although a theory has been advanced that the archipelago is the northern apex of a former southern continent, it finds little support from biologic, botanic, or hydrographic investigations. Moreover, such a continent extending southward towards Australia would have been of no assistance to birds migrating from America, though its former existence, could it be proven, would render easy the explanation of the derivation of the Australian elements of the Hawaiian fauna and flora. The presence of two shoals, situated, roughly speaking, midway between San Francisco and Hawaii, has suggested the former existence here of large islands now sunken. If such islands really existed, which is doubtful, they unquestionably would have aided the passage of American birds and plants to the Hawaiian Islands.

In his interesting article on 'The Migration of Certain Shore Birds' quoted above, Mr. Clark argues that prevailing winds, especially the steady trades, offer a reasonable explanation of the way certain birds are, or may be, guided in migrating. Such an explanation seems to apply peculiarly to the case of the American Golden Plover which, as is well known, abandons the North American continent at Labrador and Nova Scotia, and, under ordinary circumstances, makes no landfall till it strikes the Guiana coast, a distance of about 2000 miles. It is perhaps more remarkable that, instead of returning in spring to its breeding grounds by the same route it takes in fall to its winter quarters, it follows an all land route, and traverses the length of two continents, thus furnishing the most extraordinary migration route of any existing bird, as pointed out by Professor Cooke.

An attempt to apply to the case of the Pacific Plover wintering in Hawaii the same principles so well worked out for the Atlantic coast form is not so successful. About September the wind that prevails in the North Pacific immediately south of the Aleutians is from the northwest. It is generally believed that migrating birds prefer to fly on a beam wind. By heading southwest birds migrating to Hawaii might have the northwest wind abeam till about the neighborhood of latitude 30° where they would be almost sure to pick up the northeast trades. By then changing their course to southeast they would be enabled to fly with wind abeam till they sighted the islands. That they follow such a course in fall and steer their course by either the northwest wind or the northeast trades, there is not a particle of proof that I can bring forward; nor do I know any facts to justify a statement that they do or do not utilize the winds as guides either in fall or in spring.

The results of recent experiments by Prof. John B. Watson with Sooty and Noddy Terns along our south Atlantic coast go far to prove the contention long maintained by many that birds actually possess a sense of direction, tantamount to a sixth sense. If we grant this, as we may ultimately be compelled to do, the ability of birds to find their way both by land and sea is explained without further trouble, and quite independently of landmarks of any kind or of the winds. The possession of such a useful sense will explain many difficult problems of migration, and among others the apparent confidence with which migrants boldly launch out from Hawaii for a 2000 mile flight across the Pacific, without the aid of any compass apparent to human intelligence.

Danger of oceanic migration.—Of the fall migration of the Golden Plover on the Atlantic it may be remarked that while the birds have no landmarks to steer by after leaving the northeast coast, they are yet within comparatively easy flight of the mainland, and, in event of a bad northeastern wind, they can, and in fact often do, take refuge on the New England coast; and further on, in bad weather or in case of unpropitious winds, they alight for rest and food in the West Indies.

The Pacific Plover traverses a much more hazardous route since, when once clear of the Aleutian Islands, it not only leaves all landmarks behind but also all ports of refuge. The Hawaiian Archi-

pelago, with the chain of low islands and sand spits to the northwest afford a reasonable chance for a successful landfall, since unitedly they stretch away in a very thin line for some 2200 miles. Moreover the islands are close enough together so that migrants high in air would not be likely to miss them by passing between. Flocks that chance to get to the eastward of Hawaii, however, are probably doomed, since they would have to fly another thousand miles or so before finding islets on which to rest. The Marquesas group, the first islands of size to the south of Hawaii, is about 2000 miles away, or about 4000 miles from the Aleutians, and it is more than doubtful if even the strong winged plover could fly 4000 miles without rest and food and survive the trip. That many of the migrating shore-birds actually perish at sea admits of no doubt.

In this connection it is of interest to note that in the few instances in which island migrants have been sighted when near their journey's end, going or coming, they exhibit fatigue, and usually evince a strong desire to board passing vessels. The incident noted by Dr. Mearns has been cited. Other instances were reported to me by the captains of two island bound barks who sighted several small flocks of plover during the last days of September, 1900, when from 200-400 miles off Hilo. These birds appeared much fatigued and exhibited a strong desire to board the ships, especially when their calls were imitated.

E. W. Nelson, however, while on the 'Corwin,' October, 1881, saw a small party of plover about midway between the Alaska Peninsula and the Hawaiian Islands. These birds were headed directly for the islands and they flew swiftly on their course, showing no signs either of uncertainty or of fatigue.

Moult of the Pacific Golden Plover.—It is of interest to note that in fall this plover migrates before it moults; in spring it moults before it migrates. The first birds to reach the archipelago in August are, as stated, adults, and while they are practically in full breeding dress they begin to moult into the winter dress almost at once. The moulting season for the species is long, and many individuals, doubtless birds of the year, may be found the last of December still moulting into the fall and winter dress. By the middle of February numerous individuals are already beginning to moult a second time and to assume the distinctive nuptial plumage,

which, in the case of these early birds, is practically completed during the month of March, though individuals continue to moult far into April and some no doubt complete the final stages in Alaska.¹ Doubtless the individuals to moult first in spring are the adults which arrive first, and finish the fall moult first; and doubtless, too, these are the birds first to leave Hawaii for their breeding grounds in Alaska. So protracted is the moult of the species that it is probably true that during the stay of this plover in Hawaii — from middle August till May — there is not a month when some individuals are not moulting.

There is no reason for believing that the plover summering in the islands which, as before stated, are chiefly if not wholly immature birds, participate in the spring moult. At all events the Hawaiian summer plover and turnstones that I have seen were, without exception, in the winter garb.

Why the Plover migrates.— We have thus seen that what at first might appear a physical impossibility — the 2000-mile flight of small birds across an ocean highway, without a single landmark and with only the friendly winds to guide them, if indeed, they utilize these as guides — is not only possible, but the feat is accomplished annually by many thousands of individuals, and that too apparently with no stops for rest and food. The wonder of it is but increased when we realize that these annual flights are undertaken solely for the purpose of making a sojourn of a few brief weeks in Alaska to nest and rear their young. The hazards of such journeys are very great — much greater than any land migration however prolonged — and there is no doubt that of the thousands daring the perils of the trip from Alaska many are lost, either by missing the islands altogether or by being caught in storms; or by reason of insufficient strength and wing power. The flight from the islands to Alaska, though not without danger, is less hazardous than the southern flight, both because a much greater proportion of the migrants are mature and experienced, and because, in case they lose their way, they have two continents as marks to hit.

¹ I have several specimens taken in March and April which were kindly sent me by my friends Mr. Henry Patten and Mr. W. B. Newell of Hilo. These are in spring plumage but show unmistakable signs of molting.

The motive for the fall migration of the plover, like that of the other waders breeding in the far north, is easily understood. Whatever may have been the case in the distant past, to-day the waders have no alternative. They must migrate from the Arctic in the fall or starve. The only choice offered is as to the selection of winter quarters. Thus compelled to migrate, it appears that a certain number of plover and of several other shore-birds find the Hawaiian Islands a winter resort so attractive that to reach them they brave the perils of migration across a wide and stormy ocean. Why then do they not permanently colonize the islands? If adapted to the bird's needs for nine months of the year, why not for the other three?

It cannot be said of the spring migration of these Hawaiian migrants as of the fall, that the birds have no alternative. On the contrary the choice is open, and they would seem to have every incentive to remain, with no very apparent motive to migrate. The chief cause compelling winter visitors to the Tropics to leave and to seek northern regions in which to breed has been supposed to be the overcrowding of the Tropics in spring and the resulting lack of room and of food. No such conditions appear to confront the winter sojourners of Hawaii. During its stay in the islands the plover, as also the turnstone, feed chiefly in the upland pastures and clearings, up to 6000 or 7000 feet, and on newly plowed cane land. Both the sugar planter and the stock raiser have much to thank the plover for, since, while the birds feed on small seeds to some extent, they live chiefly on insects, and according to Perkins, on insects of much economic importance, since they depend largely on the caterpillars of two of the most widely spread and destructive of the island 'cut worms.' These insects are most abundant when the grass on the island pastures is green and luxuriant, and this usually is in winter when rains are most copious. That the supply of food in winter and spring is ample is sufficiently attested by the fact that the birds get into such excellent condition. Even if it be assumed that the supply of food in summer is less than in spring, and hence inadequate for the needs of the thousands that winter here, together with their young, still there is enough to sustain very many more than the comparatively small number of non-breeders that summer here.

From the standpoint of the food supply it is even more difficult to explain why the tattler and the curlew leave the islands in spring, since these birds feed almost wholly along shore where there can be no appreciable difference in the quantity of food summer and winter.

The question why the island plover migrate is all the more difficult to answer when we remember that the islands have been permanently colonized by certain other American birds, such as the Hawaiian Stilt among the Limicolæ, the Night Heron of the *Herodiones*, the Hawaiian Mud Hen and Gallinule of the *Paludicolæ*, the Hawaiian Goose, the Short-eared Owl, and the island *Buteo*. These birds came to the islands as waifs, as did the plover. Finding room, shelter, and food abundant, they wisely elected to roam no more, but to become permanent residents, and to forswear for all time the perilous and unnecessary habit of migration. Since *they* successfully resisted the impulse to return to their former summer homes to nest, then why not the other species? As stated above the failure of the plover and turnstone to become permanent colonists is not because they are crowded out by other species. In fall the migrants from Alaska find the inviting island pastures unoccupied, and as they find them in fall, so they leave them in spring.

I can suggest no very convincing answer to the question, but I may note the significant fact that the present suitability of the islands as a breeding ground for the plover and turnstones is very recent as compared with the birds' acquaintance with them. The cleared strip around each island now planted chiefly to cane, which may be roughly stated to be three miles wide, and the extensive clearings above this strip which serve for pasture for cattle, are less than a hundred years old, most of them less than 50. Prior to their discovery by Europeans all the islands were heavily forested, nearly or quite to the shore. Possibly then the plover and other migrants have been slower to realize the situation than the other species, and do not even yet appreciate the advantages offered by continuous island life.

It may be said too that the spring migration of the plover and turnstone is so intimately interwoven with the function of reproduction, that we are quite safe in assuming that, were it not for the desire to nest, the birds would never migrate. Those in fact which

are not stirred by the impulse to nest, either because too immature or too old, do not migrate; and the intimate connection between migration and reproduction appears further from the fact that all the individuals that migrate don the nuptial dress before they start, a sufficient declaration of their purpose in undertaking the trip; while those that remain retain the dull winter plumage.

It appears to be true of all birds that having once reached their winter quarters, be they near or far from the summer home, no migrating species attempts to return to its summer haunts till stimulated thereto by the profound physiological change consequent upon reproductive activity. This impulse is not primarily due to change of season or to change of temperature, but is periodic and physiological. When once felt, every instinct seems to impel birds to take the shortest route to the spot where they first saw the light, or where they have reared young. This has often been called the home instinct. In the case of many species the phrase is not very happily chosen, though I myself have used it, since that locality is more properly to be called a bird's home where it spends the greater part of its life, rather than where it spends a few brief weeks annually. Nevertheless the power of habit transmitted through thousands of years is very great, and it is probably this influence associated with the reproductive instinct which so far has prevailed over other considerations and caused the plover to migrate from Hawaii in spring.

If the Charadriid birds, the plovers, sandpipers, and curlews, originated in the Arctic, as Seebohm and others believe, and were forced by the exigencies of the ice age to become wanderers over the face of the earth, then indeed the spring migration of the waders from their distant winter resorts is more fitly termed a return home, and the instinct prompting the flight the homing instinct. Originally forced by the ice invasion to abandon their then Arctic Paradise and seek shelter and food in distant parts, as the ice receded they gradually formed fly lines to and from their summer and winter homes till the habit formed during thousands of years became so fixed as to absolutely dominate many species. That it did not dominate all of the original migrants, however, appears from the fact that permanent colonies settled here and there even in tropical regions, showing that under certain circumstances the

habit of migration can be and is overcome. Of the island plover all we can say is that so far as we can see its spring migration to its Arctic breeding grounds is not necessary, except in so far as made so by the tyranny of habit.

This explanation has at least the advantage that it explains nothing, and hence leaves the problem open. It simply shifts slightly the point of view. We perceive that the island attractions have proved sufficiently strong to make permanent residents of certain species which have strayed to the archipelago. In the case of other strays, like the island plover and the turnstone, either the island attractions are not so strong, or the birds' love for their original habitat is stronger, and they continue to migrate, though with much danger and at a great cost in lives.

Before leaving this subject I must add that several independent observers have reported finding a few young plover and turnstones in summer on the coast of Kau, island of Hawaii, and at one time I thought it possible that a few curlews also remained to breed; but in the case of none of these species was I able to fully satisfy myself that the birds reported were nestlings. It is, however, not impossible that occasionally a disabled female plover, tattler, turnstone or curlew secures a mate and nests in Hawaii. Indeed it seems highly probable that it is in this accidental sort of way that new avian colonies are occasionally planted. Such indeed may be the explanation of the resident colonies of American species like the coot, gallinule and others above referred to. Possibly, too, young birds of the year remaining for the summer occasionally feel the breeding impulse after their comrades have left for the north and so breed and found permanent colonies.

NOTES ON THE AUTUMN MIGRATION OF THE CANADA GOOSE IN EASTERN MASSACHUSETTS.

BY J. C. PHILLIPS.

THE Canada goose presents a comparatively easy mark for migratory study, and the notes which follow are based on data from the following sources:

First. Ten years continuous observations at a stand on Wenham Lake from about September 20 to about November 20, some years well into December.

Second. Five years continuous observation at Oldham Pond, Pembroke, from before October 1 to December 23-27.

Third. Record of first geese shot and totals of stand at the Island Oldham, 1876 to 1897. Scores at Baker's camp, Oldham, 1896 to 1904.

Fourth. Goose killings at a large number of gunning camps from all along the flight-belt. It may be here stated that these totals can be accepted as accurate, because, there being intense rivalry among the stands, the result of almost every shot is seen or heard among the neighbors, thus rendering exaggeration nearly impossible.

Daily Records.—The method of recording data at Wenham and Oldham Camps has been as follows:

At the end of each day the weather is briefly recorded, with the number and species of all fowl seen flying, and of all which lit in pond, together with those shot and details of shooting. Watch is supposed to be continuous, but is necessarily interrupted for meals, camp work, etc. Watch is usually kept on moonlight nights during flight-time for at least the first part of the night.

Scope of Notes.—In the notes that follow, I have attempted to gain a more accurate idea of the time, direction, volume and width of the autumn coastal flight.

General.—I have had a chance to study the geese in August, in James Bay, where the young families were beginning to arrive on the great marshes from the inland muskegs and ponds; and the flocks were mainly composed of separate families of from five to eight birds.

Currituck, N. C., has been visited nearly every winter for the past eleven years, and close observation and inquiry has led me to believe that geese are slightly on the increase in that sound. This may be due to a partial shifting of more westerly flights owing to changed conditions of the country, to an increase in the Atlantic Coast flight, or to a complex of conditions of which we are ignorant.

The score in geese at one club at Currituck, for the past season, was over one thousand; though this is an especially favorable place. At this same club 5795 geese have been taken in the last 22 years. 1909-10 is the largest year, corresponding with largest flight at Oldham Pond. It does not seem possible that geese can be even holding their own, though old goose gunners in Massachusetts see no decrease.

Arrival in Massachusetts.—Turning to Massachusetts, I find my earliest date for arrival is at Wenham, September 28, 1900. Earlier flocks have been noted, but I am not entirely satisfied that they were not cormorant, so I shall not consider them. In 1904 there is a date for killing on October 1 at Wenham. From 1900 to 1909, the average appearance at Wenham is October 16. The latest appearance is November 16.

The past five years at Oldham Pond, Pembroke, show earliest October 15, latest October 22, average October 19. Dates of first killing at the old Island camp, 1876-97, are earliest October 11, latest November 8, average October 23. I note that the ten year average at Wenham is earlier than any other average, which is curious, because fewer geese occur there. Since then I have found an earlier date, October 2, 1891, for Oldham — 6 out of 7 geese shot.

Perusal of my Oldham books shows in a general way an October flight from the 15th to 27th, which is followed by an entire blank. The November flight begins from November 5 to 19, the dates for the five years being November 8, November 5, November 19, November 8, November 5. Thus there is an interval during which no geese are seen. It averages seventeen days, or 12, 11, 27, 23 and 15 days respectively.

The birds in the early flight are apt to be low and to decoy well. No great flights are noted, and I should doubt whether they ever occur.

The November flight lasts for a long time, interrupted by periods

of a week or more during which no geese are heard of from any points. It lasts up until Christmas time, or a little before, the bulk having passed by December 1. It is apparently always followed by a small migration during the first week in January. Geese have often been reported to me at Ipswich during this time, and at Accord, Mass. The latest date which I have recorded is January 11, 1907, though I dare say there are much later ones. In early January, 1909, there was a good flight at Accord; as many as four or five bunches being seen in one day.

I have a letter from Mr. T. C. Wilson of Ipswich in which he says, "I gunned all day in a flight of geese, January 3, 1905 or 1906, — I can't recollect which date, but there were plenty of them. I killed four. In 1908 I killed one out of three on January 5, but they had been hanging around for some time."

It should here be stated that there are only very rarely any "tending" geese in the belt of migration which we are considering. Farther out on the Cape and on Martha's Vineyard a few spend the whole winter, especially if it be mild. Wood's in the 'New England Prospects,' 1634, says in regard to Geese: "These come in great flocks about Michelmasse, sometimes there will be two or three thousand in a flock: these continue six weeks and so fly to the southward, returning in March and staying six weeks more." This state of affairs, however, has passed long ago.

I have no systematic records for the spring flight, and will dismiss this subject by simply saying that it occurs in Massachusetts, well to the east of the fall flight belt, and that the birds have a tendency to tarry on the outer Cape and Vineyard.

Total Bags for Eastern Massachusetts.—To get an idea of the entire toll taken from the ranks of the geese in Eastern Massachusetts during the fall, I gathered a number of records from the stands in 1908, and allowing for those I did not know about, arrived at the figure 1450.

For the past season, with more extended data and a better goose year, I reached the figure 1900.

These figures in detail for 1908 are as follows:

Oldham Pond, Pembroke.....	96	Monponsett Pond, Halifax.....	70
Pleasant Lake, Harwich.....	9	Furnace Pond, Pembroke.....	8
Accord Pond, So. Hingham....	120	Indian Head.....	2
Bog near Accord.....	30	Wenham Lake.....	14
Jacob's Pond, Norwell.....	25	Punkapoag Pond.....	about 120
Duxbury Bay.....	350	Chebacco Pond, Essex.....	46
Silver Lake, Kingston.....	325	Clarke's Pond, Ipswich...about	40
Great South Pond, Plymouth..	125	Martha's Vineyard.....	about 25
Weymouth Pond.....	160	All others.....	about 150
Whitman Pond, Weymouth...85		Total	1900
Robbins Pond, E. Bridgewater..	100		

Map of Flight.— Various records for Essex County have showed that the western edge of the flight crosses Cape Ann near Essex, and that at Wenham we are just outside of it. For four years during which late records were kept at Wenham, an average of only 143 geese a year were seen, about 12% as many as the Oldham average. At Chebacco Lake, four miles east, many more are seen and taken each year,— therefore, we are here in the neighborhood of the western edge of the flight belt. Chebacco Pond records for the past six years have been examined with this point in view.

South of Boston, we find Punkapoag and Quincy Bay inside the belt. Passing east, we cross the flight-belt, which is about 36 miles broad and has its eastern edge roughly at Manomet Point, Plymouth, or the eastern coast of Buzzards Bay. I cannot find that such great flights as are witnessed at Duxbury Bay and Mattapoissett occur much further east. The ponds southeast of Plymouth, such as Long Pond, Halfway Pond, White Island Pond, and Billington's sea were never famous as good ponds.

As we go out on the Cape, we find the flight more and more scattering and irregular. At Pleasant Lake, Harwich, as many as 60 have been shot in the fall, and sometimes scarcely any at all,— last year 9. The same conditions hold at Cliff Pond, Brewster, Eastham Pond, and Gull Pond, Wellfleet. All these places occasionally get geese, but there is no dependable flight. It is the same with the Vineyard. I am told on good authority, from two different sources, that the fall bag for that island will not average much over 25 birds.

Direction of Flight.— It is interesting to try and get at the direction of this overland flight. So many times flocks going over

Hanover Four Corners, and identified there by count, have come straight over Oldham Camp, that I take this as a common direction line.

If we join these points we get a direction 20° east of true north. Now if we draw out this same course south of Essex, we find it touches Punkapoag Pond, as I think it should. Placing a parallel line to this through Manomet Point, we include a belt 36 miles wide which is strikingly parallel to the coast between Portland and Boston, and some distance off shore.

South of Massachusetts the flight must bend east. A considerable flight noted at Wenham and Oldham November 13, 1909, was recorded on the same date at Montauk Point, Long Island, as a "constant stream of geese." The general direction of large numbers of geese passing over us at Oldham has been noted. I should say that this was seldom over 35 degrees east of north. Of course, in heavy westerlies the birds must have to head into the wind to allow for drift.

Lines of Flight.—It is difficult to say whether inside our belt there is any preference for certain lines. It is a noteworthy fact that a flight lasting a day or more is very apt to follow a certain line. On November 18, 1908, I note,—“For last four days good flight at Accord Pond. Score for Pond 89 geese, none seen at other ponds.” This sort of thing happens all the time. It is also a common observation, especially when a flight is on, to see one bunch following up another, and in sight of it. Often several bunches have come into the pond inside of five minutes. Valley routes seem to be preferred. At Wenham we have a striking example of this.

Birds are seen when they are looked for, and we know that at the following places considerable flights are seen every season: Weymouth Great Pond, Whitman's, Accord, Oldham, Silver Lake, Duxbury Bay, and Great South Pond. It will be noted that the best goose ponds are those lying within the flight-belt and nearest Massachusetts Bay. In reply to a letter asking about the size of goose flights at Duxbury, Dr. Rockwell Coffin writes me as follows:

“I should say I have, at times, seen between 2000 to 3000 geese in a day, many of them outside of the sand bar, and so far away that it is impossible to tell them from brant unless one uses a strong

glass. Besides these, during a flight we have a good many going over the island at night, which we can hear but not see. Last year, 1908, in the big flight, I have heard it said that at least 10,000 geese passed in one day, but probably this is an exaggeration."

Of course, it is probable that such large and attractive sheets of water as Duxbury Bay concentrate a migratory wave, even if few birds are stopping, and the same may be true with the larger ponds to a lesser extent. However, there are no extensive observations that I can find on points away from the ponds.

Calculations for Number.—Now as to the Oldham records on the point of numbers. I have the totals and averages for the past five years of all geese seen from this point. Flocks that are unestimated, of which there is an average of five each year, I place at 35, this being the average size of a migrating flock, as taken from a list of about 40 bunches which were carefully counted. Many of these unestimated bunches were large ones, so we are on the safe side.

The smallest year was 1906 — 458 and 9 bunches.

The largest year was 1909 — 1649 and 4 bunches.

The total average of geese per year is 1145.

To this I think it fair to add 50% more for all those passing unobserved in the night, for those which escape observation in the day time, and for the January flight. We then get a total yearly average of 1717. Now the arc of sky under observation at Oldham is comparatively narrow. Geese east of us can only be seen a very short distance on account of flat land and high timber, and west of us across the pond the land is fairly high. I assume this arc to be about $1\frac{1}{2}$ miles wide. Some high geese would be visible outside of the limits thus set, while I think low geese near either edge might not be seen at all. The estimate of the width of this arc is of course open to serious error, but it is the best that can be done for the present. If then we divide the whole flight belt of 36 miles into 20 belts, each of $1\frac{1}{2}$ miles, we get a yearly total of 34,340. Outside of our 36 mile belt, it is useless to speculate, but it seems probable that by far the largest proportion of the Atlantic coastal flight is included between our parallels.

I know very little about the height that geese may travel at. It is possible that many flocks may escape observation from their

height alone. The gunner usually depends on his decoy geese to show him high flying fowl.

The above estimates are, of course, only of comparative value, and must not be taken too literally.

Weather.—Every one who has gunned for migratory geese knows in a general way that calm weather or brisk southwesterly winds are better times to decoy birds than during northerly to northwesterly winds. Geese will almost never stop in brisk northwesterlies, though heavy flights occur on these winds. The gunner does not expect and only rarely does he see geese during easterly weather. Probably geese never start a migration with winds directly behind them, or with a low pressure area about them, but occasionally they run into a sudden local disturbance.

In an attempt to find out something more on this subject, I studied the United States Weather Charts corresponding to the dates of 12 big flights. I took only my own records for these dates. The weather charts run up to Father Point, Quebec, and include observation in Newfoundland. It would take a lot of work and careful study of the Canadian records to enable one to make definite statements. Speaking very generally in regard to the whole Northeast Coast, the most noteworthy feature of the weather on the dates of the flights seems to be absence of wind, or winds light N. W. to N., and lack of low pressure areas, though these may just have passed northeastwards over the Gulf of St. Lawrence.

An attempt was made to group flights into two classes,—Favorable and Unfavorable,—placing in the first class those high flights that paid no attention to decoys or ponds, and in the second class, periods when geese flew low and decoyed well. The data available are not sufficient, but seem to point to the fact that geese feel more like stopping after a long flight through calm warm air than during moderate to brisk north to northwest weather, even if it be complicated by cloud and precipitation.

Habits.—I cannot close without saying a word about the curious fact of migrating geese entirely losing their heads when a good shot is made among them. At such a time the same geese that would spring at the slightest notion of danger, will often allow themselves to be shot from a boat. I have once or twice seen wild geese sit on the beach after a shot has been fired. This must be

due either to a very strong interdependence of the flock, or to utter stupidity, and we can scarcely credit it entirely to the latter. Although geese are so very shy at home, they will at times light in the most astonishing places. At Wenham, geese have lit in a flooded orchard in the spring in answer to a few honks from captive geese, and wild geese were twice caught in my breeding pens on a small brook. They do not appear to pay any attention to buildings or artificial stationary objects if they once make up their minds to come to decoys, and in this way are wholly unlike their smaller cousins, the ducks.

In confinement geese are interesting pets and just fail to attain the state of complete domestication. Under the ordinary conditions of confinement, only a certain proportion mate and breed, many remaining celibates to a green old age.

Variation.—In regard to variation in the wild state, we notice a great range in size, and a considerable difference in the whiteness of the breast feathers. This last is not a difference due to age, as old geese kept by me are almost perfectly gray underneath, others close to pure white.

A gander of one of my mated pairs showed a very distinct ruddy tinge to the tips of the feathers of the upper back and sides, and this peculiarity was passed on to his young, though to a lesser degree. I have seen this variation several times in wild birds.

One hears a great deal of talk among gunners in Massachusetts about the late flight of white-bellied geese. These are supposed to be shorter necked and whiter on the breast. I have seen flocks consisting of probably a single family which were certainly white and full feathered, but I imagine these are birds which hatched and moulted early. It may be that a pair of birds showing less pigment than the average will have young like themselves.

Mr. J. W. Whealton of Chincoteague, Va., who has raised a great many Canadian geese on that island, has been reported by Mr. Beebe as believing in a distinct northern and southern race of geese, though no definite reasons for this statement are given. The northern race is supposed to be larger.

It is hoped to continue observations at Oldham Pond for the next five years which, when compared with or added to the present records may be of some interest and significance.

Brant.—At Oldham Pond the records for five years show the occurrence of Brant only four times. 1905 — 1 in pond, flock of 30 flying. 1907 — 1 in pond. 1909 — flock of 18 in pond. This shows clearly the preference of the Brant for the longer and more easterly route outside Cape Cod.

SUMMER AND FALL BIRDS OF THE HAMLIN LAKE REGION, MASON COUNTY, MICH.

BY RALPH WORKS CHANEY.

THE records upon which the following list of birds is based were taken in the Hamlin Lake Region, in Western Mason County, Michigan, during a period extending from June 20 to September 27, 1909.

The main portion of Hamlin Lake is some seven miles long and opens into Lake Michigan on the west through a channel less than a mile in length. Entering Big Hamlin from the northeast is Upper Hamlin Lake, which is less than half as long as the larger lake, and only half a mile across at its widest point. Into Upper Hamlin from the east flows the Sable River, at the mouth of which are large marshes, which I did not explore. Many small streams, usually heavily wooded, flow into Upper Hamlin, widening at their mouths into swampy "bayous" bristling with tall stumps and snags. Woods rise up on all sides of the lake, especially on the north, in which direction they extend for many miles. Formerly a lumbering country, this region now contains but few white pines, most of the timber being hardwood, beech, maple, oak and birch. Hemlock also is commonly scattered through the beech woods, and along the creeks arbor vitæ is the most abundant form. Parallel with Lake Michigan, numerous sand ridges extend toward the north, the tops of which are covered with oak and hemlock. The little valleys between these ridges are almost jungles, from their profusion of saplings, ferns, blackberry bushes, and other under-

brush. Near Lake Michigan are extensive dunes, bare except for a covering of wild grape-vines and a few scattered trees. A mile back in the woods from Upper Hamlin lies Nordhouse Lake, which shrinks to a small pond by the end of the summer, but furnishes a good feeding place for ducks and shore birds. On the east and to some extent on the south of Upper Hamlin are extensive farms and orchards, about which many common birds were seen.

This region appears to be the southern breeding limit of a number of the more northern species. In Oceana County, near Little Point Sable, less than thirty miles south, such birds as the Yellow-bellied Sapsucker, Junco and Winter Wren are not commonly seen during the summer. These species and other northern breeding birds were seen about Hamlin Lake all summer, though not in large numbers.

Several short trips were taken into Oceana County, in the vicinity of Silver Lake, where I saw a number of ducks and shorebirds not observed in Mason County.

1. **Colymbus auritus.** HORNED GREBE.— This species was not observed during the summer, and was seen only once on Upper Hamlin, Sept. 16. A specimen was taken at Silver Lake, in Oceana Co., on Sept. 23.

2. **Podilymbus podiceps.** PIED-BILLED GREBE.— During the latter part of the summer this grebe could be seen daily in small flocks on Nordhouse Lake.

3. **Gavia immer.** LOON.— One was seen Sept. 21 on Lake Michigan.

4. **Larus argentatus.** HERRING GULL.— Although common around the harbor at Ludington during the summer, I saw no evidence of breeding. Migrants from the north came down early in September.

5. **Larus delawarensis.** RING-BILLED GULL.— Common along Lake Michigan during September.

6. **Larus philadelphia.** BONAPARTE'S GULL.— Large flocks were seen on Upper Hamlin early in September.

7. **Lophodytes cucullatus.** HOODED MERGANSER.— An immature female was secured from a flock of three, all in immature plumage, at Nordhouse Lake on Sept. 11.

8. **Anas platyrhynchos.** MALLARD.— Several females were seen at Silver Lake on Sept. 23.

9. **Anas rubripes.** BLACK DUCK.— While hunting on Silver Lake on Sept. 23, I secured two females from a flock of about ten. When alarmed the birds rose in almost perpendicular spirals which soon carried them out of range.

10. **Querquedula discors.** BLUE-WINGED TEAL.— Fairly common. A specimen was taken at Silver Lake on Sept. 23.

11. **Marila americana.** REDHEAD.—A flock of four Redheads was seen on Upper Hamlin on Sept. 26.

12. **Marila affinis.** LESSER SCAUP DUCK.—Several pairs were breeding in the "bayous" on the north side of Upper Hamlin. On July 1 I saw a flock of young birds barely able to fly.

13. **Botaurus lentiginosus.** AMERICAN BITTERN.—Common in swampy territory, but seldom seen about Hamlin Lake.

14. **Ardea herodias.** GREAT BLUE HERON.—Single birds could be seen almost daily flying over the lake to a rookery on the Pere Marquette River. Toward evening it was a common sight to see them fishing along the marshy shores.

15. **Fulica americana.** COOT.—Rather common late in September.

16. **Pisobia minutilla.** LEAST SANDPIPER.—Common, in small flocks along the shore of Lake Michigan during September.

17. **Calidris leucophæa.** SANDERLING.—Large flocks were seen near Lake Michigan in September.

18. **Totanus melanoleucus.** GREATER YELLOW-LEGS.—A single bird was seen flying over Upper Hamlin on Aug. 17.

19. **Totanus flavipes.** YELLOW-LEGS.—Common about Nordhouse Lake during the latter part of August and early September.

20. **Helodromas solitarius.** SOLITARY SANDPIPER.—Common about the lakes after Sept. 9.

21. **Actitis macularia.** SPOTTED SANDPIPER.—This species bred abundantly around Upper Hamlin. Young birds were seen on June 27.

22. **Charadrius dominicus.** GOLDEN PLOVER.—A dead specimen was picked up on the shore of Silver Lake on Sept. 23.

23. **Oxyechus vociferus.** KILLDEER PLOVER.—Rather common. Flocks were seen frequently during September.

24. **Ægialitis semipalmata.** SEMIPALMATED PLOVER.—Large flocks were seen at Silver Lake on Sept. 23.

25. **Colinus virginianus.** BOB-WHITE.—Common in the farming regions, and about open hills. Young were observed on June 28.

26. **Bonasa umbellus.** RUFFED GROUSE.—This species was most common in the dense coniferous woods, and along the heavily wooded creeks. A female with young was seen on June 30.

27. **Zenaida macroura carolinensis.** MOURNING DOVE.—Not common, only a few pairs breeding in the open woods.

28. **Cathartes aura septentrionalis.** TURKEY VULTURE.—A pair was seen soaring over Hamlin Lake on July 16. Although regularly seen further south, I am told that this species is seldom observed at this latitude.

29. **Circus hudsonius.** MARSH HAWK.—Individuals were occasionally observed.

30. **Accipiter velox.** SHARP-SHINNED HAWK.—Not common. Occasionally seen about the "bayous".

31. **Buteo borealis.** RED-TAILED HAWK.—A pair of these birds was seen on Sept. 16.

32. **Haliaeetus leucocephalus.** BALD EAGLE.— Only one pair was seen about the lakes. Dr. Alfred Lewy of Chicago found an eagle's nest several years ago in the woods on the sand hills. It was placed about sixty feet from the ground in an oak, and on July 1 contained two large young.

33. **Falco sparverius.** SPARROW HAWK.— Fairly common on the wooded ridges.

34. **Otus asio.** SCREECH OWL.— On the chilly evenings and early dawns of September, the quavering call of this owl was heard frequently.

35. **Coccyzus americanus.** YELLOW-BILLED CUCKOO. Fairly common.

36. **Ceryle alcyon.** KINGFISHER.— Every suitable bank around the lakes was in possession of a pair of these noisy birds. Young birds were out in the last week in June.

37. **Dryobates villosus.** HAIRY WOODPECKER.— Common in the dense woods. In September they became quite abundant, and seemed to prefer the open or burnt-over woods.

38. **Dryobates pubescens medianus.** DOWNY WOODPECKER.— Common, especially during September.

39. **Sphyrapicus varius.** YELLOW-BELLIED SAPSUCKER.— A pair seen on July 12 on a burned over hillside was probably breeding, although I failed to locate the nest. Migrating birds were seen during the latter half of September.

40. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.— A few pairs were observed about the farms and clearings.

41. **Colaptes auratus luteus.** FLICKER.— Very common, nesting around clearings and in stumps in open fields. Nests contained young early in July. The farmers complained that the "Yellowhammers" did a great deal of damage to their corn crops.

42. **Antrostomus vociferus.** WHIP-POOR-WILL.— At dusk and early dawn these noisy fellows kept up a great racket around the edge of Upper Hamlin. Birds were occasionally flushed during the daytime in the hardwood forests.

43. **Chordeiles virginianus.** NIGHTHAWK.— Abundant over the lake and woods in the late afternoon and evening. On July 2, while crossing a burned-over ridge, I flushed a Nighthawk from a set of incubated eggs which were placed on the bare ground near a partly burned log. Migration in large flocks occurred between August 23 and Sept. 9.

44. **Chætura pelagica.** CHIMNEY SWIFT.— Very abundant in the towns but only a few pairs were observed about Upper Hamlin. A nest containing five eggs far advanced in incubation was discovered on July 11, on a wall in a stable of an unoccupied lumber camp in the midst of the woods.

45. **Archilochus colubris.** RUBY-THROATED HUMMINGBIRD.— Fairly common in the few suitable localities.

46. **Tyrannus tyrannus.** KINGBIRD.— This species might be considered almost aquatic in its nesting habits, as the nests were invariably placed in stumps projecting out of the water, often at a considerable distance from the shore. Nests with eggs — always three in number — were seen up to the middle of July.

47. *Myiarchus crinitus*. CRESTED FLYCATCHER.—A few pairs occupied the open portions of the woods. Young birds were out by July 19.

48. *Sayornis phoebe*. PHEBE.—Common about the farms.

49. *Nuttallornis borealis*. OLIVE-SIDED FLYCATCHER.—If classification were based on temperament, this species should be of the genus *Tyrannus*. Perched on the dead top of a hemlock, the male successfully guarded the vicinity of his nest in true Kingbird fashion, and his loud *whip-wheu-wheu-u-u* could be heard for a long distance. Several pairs were seen, invariably on wooded hillsides.

50. *Myiochanes virens*. WOOD PEWEE.—The most abundant bird of the hardwood timber. Young were flying by July 25.

51. *Empidonax flaviventris*. YELLOW-BELLIED FLYCATCHER.—One, probably migrating, was seen on August 25.

52. *Empidonax minimus*. LEAST FLYCATCHER.—Common, especially in the maple woods around the edge of Upper Hamlin. A nest was found on July 29 which contained two incubated eggs. This was placed in a semi-pensile position in a small fork in the outer branches of a maple, and would have passed for a nest of the Red-eyed Vireo.

53. *Cyanocitta cristata*. BLUE JAY.—Only occasionally seen during the summer, but became common in small flocks during the latter part of August.

54. *Corvus brachyrhynchos*. CROW.—Common around the lake and about the sandhills.

55. *Dolichonyx oryzivorus*. BOBOLINK.—Fairly common in the farming regions.

56. *Molothrus ater*. COWBIRD.—Not very commonly seen, although a number of eggs, usually in the nests of the Red-eyed Vireo, were found.

57. *Agelaius phoeniceus*. RED-WINGED BLACKBIRD.—Common in the "bayous" and other marshy places.

58. *Sturnella magna*. MEADOWLARK.—A common bird about the farms.

59. *Icterus galbula*. BALTIMORE ORIOLE.—Not common around the lake. Young birds just out of their nest were seen on July 28.

60. *Euphagus carolinus*. RUSTY BLACKBIRD.—A small flock of migrating birds was seen on Sept. 24.

61. *Quiscalus quiscula æneus*. BRONZED GRACKLE.—A few pairs were breeding in the hemlocks around the edge of Upper Hamlin.

62. *Astragalinus tristis*. GOLDFINCH.—Abundant.

63. *Plectrophenax nivalis*. SNOW BUNTING.—A single bird was seen feeding along the shore of Nordhouse Lake on Sept. 25.

64. *Poecetes gramineus*. VESPER SPARROW.—Common, especially about cultivated fields and clearings. A nest containing young was seen on July 3. In the latter part of September large flocks were noted daily.

65. *Zonotrichia albicollis*. WHITE-THROATED SPARROW.—A singing bird observed on July 14 was probably breeding although I could not discover the nest. Migrants became common in the latter part of September.

66. *Spizella passerina*. CHIPPING SPARROW.— Abundant everywhere. Young in the nests were seen on Sept. 27, and fresh eggs as late as July 14. A nest was found on a horizontal branch of an oak far out in the woods, but the usual nesting site was about the clearings. Large flocks of migrants passed through during the first two weeks of September.

67. *Spizella pusilla*. FIELD SPARROW.— Not common.

68. *Junco hyemalis*. SLATE-COLORED JUNCO.— Only one pair was observed during the summer. Migrating birds became common the last week of September.

69. *Melospiza melodia*. SONG SPARROW.— Abundant. A nest with young was seen on June 25.

70. *Melospiza georgiana*. SWAMP SPARROW.— Rather common on the edges of the "bayous."

71. *Passerella iliaca*. FOX SPARROW.— The only Fox Sparrow seen was one which alighted on the steamer at the middle of Lake Michigan on Sept. 27. Other land birds seen at mid-lake were Flickers, a Palm Warbler, and several Golden-crowned Kinglets, the latter of which allowed me to pick them up without any fear.

72. *Pipilo erythrophthalmus*. TOWHEE.— Very abundant about the edge of the woods and in the brushy clearings. A nest found was on the ground near a road, and contained young early in July. Large flocks of migrating birds, largely immature, were seen during September.

73. *Zamelodia ludoviciana*. ROSE-BREASTED GROSEBEAK.— Fairly common on the wooded sides.

74. *Passerina cyanea*. INDIGO BUNTING.— Only a few pairs were seen.

75. *Piranga erythromelas*. SCARLET TANAGER.— The song of the Tanager could almost always be heard in the beech forests. A nest in the outer branches of a hemlock contained newly hatched young on June 21.

76. *Progne subis*. PURPLE MARTIN.— Abundant in town, but not seen about the lakes.

77. *Petrochelidon lunifrons*. CLIFF SWALLOW.— This species was seen migrating with other swallows during a heavy gale on August 31.

78. *Hirundo erythrogastra*. BARN SWALLOW.— Only occasionally seen about Upper Hamlin. Nests in boathouses were still occupied on July 31.

79. *Iridoprocne bicolor*. TREE SWALLOW.— Large colonies of these swallows nested in cavities of dead stumps which projected out of the lake. Nests contained young on June 26.

80. *Riparia riparia*. BANK SWALLOW.— Common, especially during the evening when large flocks darted over the water. Nests of a small colony in the sandbank contained large young July 5.

81. *Bombycilla cedrorum*. CEDAR WAXWING.— Very common everywhere, especially on the hill-sides. Large flocks were common after the last of August.

82. *Vireosylva olivacea*. RED-EYED VIREO.— This was the most abundant songster of the woods. Several nests were found, all in the lower

branches of oaks on the hill-sides about the lake. Fresh eggs were seen on June 22, and young were in their nests as late as the middle of July. Small migrating flocks passed through about Sept. 1.

83. *Mniotilta varia*. BLACK AND WHITE WARBLER.—Fairly common in the heavy timber. Young were seen on July 16. During the last week of August flocks of migrants became very common, and a few stragglers were seen as late as Sept. 20.

84. *Dendroica æstiva*. YELLOW WARBLER.—Only occasionally seen.

85. *Dendroica cærulescens*. BLACK-THROATED BLUE WARBLER.—Not seen during the summer. Small migrating flocks were seen from August 26 to Sept. 17.

86. *Dendroica coronata*. MYRTLE WARBLER.—Migrants were first seen on Sept. 24.

87. *Dendroica magnolia*. MAGNOLIA WARBLER.—A rather uncommon migrant during the last week of August.

88. *Dendroica pensylvanica*. CHESTNUT-SIDED WARBLER.—Common about the open woods and bushy hill-sides. Young were out on July 19. During the last week of August large migrating flocks were seen.

89. *Dendroica castanea*. BAY-BREASTED WARBLER.—A specimen was taken on August 28.

90. *Dendroica striata*. BLACK-POLL WARBLER.—An abundant migrant from August 29 to the middle of September.

91. *Dendroica blackburniæ*. BLACKBURNIAN WARBLER.—A fairly common migrant during the latter part of August.

92. *Dendroica virens*. BLACK-THROATED GREEN WARBLER.—The beautiful song of this warbler could be heard at all times in the pine woods. It was not only the most common member of its family during the summer, but was also the most abundant in the migration, which occurred throughout the month of September.

93. *Dendroica vigorsii*. PINE WARBLER.—This well-named bird was rather common among the scattered pines on the hill-sides. On July 12, I discovered a nest in the top of a Norway pine, containing four young which left it a few days later. A migrating flock was seen on Sept. 11.

94. *Dendroica palmarum*. PALM WARBLER.—The first migrants were seen on Sept. 11, after which large flocks were seen daily.

95. *Seiurus aurocapillus*. OVENBIRD.—Very common, nesting on the road sides. Last seen on Sept. 11.

96. *Seiurus noveboracensis notabilis*. GRINNELL'S WATER THRUSH.—Probably a summer resident. A migrant taken on August 29, was determined to be of this subspecies.

97. *Oporornis agilis*. CONNECTICUT WARBLER.—Fairly common migrant, specimens being secured August 30 and Sept. 14.

98. *Oporornis philadelphia*. MOURNING WARBLER.—A migrating bird was taken on August 24.

99. *Geothlypis trichas*. MARYLAND YELLOW-THROAT.—Found in the low marshy woods and thickets.

100. *Wilsonia pusilla*. WILSON'S WARBLER.— Small migrating flocks were seen on August 30.

101. *Wilsonia canadensis*. CANADIAN WARBLER.— This species was rather common in the small ravines where under-brush, ferns, and rotting logs made the way almost impassable. On July 11, I saw a male carrying food to its young, but was unable to discover the nest. Migrants were seen up to Sept. 17.

102. *Setophaga ruticilla*. REDSTART.— Common, especially around the shore of Upper Hamlin. A nest which the young had just left was seen on July, and another containing four newly hatched young was discovered on July 31. A common migrant in small flocks between August 29, and Sept. 18.

103. *Anthus rubescens*. PIPIT.— A specimen was taken Sept. 17, on the shore of Nordhouse Lake.

104. *Dumetella carolinensis*. CATBIRD.— Common in the shrubbery about the clearings. A nest containing fresh eggs was found on July 27, and another with young on July 16.

105. *Toxostoma rufum*. BROWN THRASHER.— Not very common. A nest containing three eggs was found on the ground in a hay field on July 2.

106. *Troglodytes ædon*. HOUSE WREN.— This species nested abundantly, not only about the farms and cottages, but also in dead stumps in the marshes and far out in the woods. Young in the nest were seen as early as June 27, and fresh eggs as late as July 16.

107. *Nannus hiemalis*. WINTER WREN.— Several pairs were seen in the densest part of the woods, and usually near a stream.

108. *Telmatoodytes palustris*. LONG-BILLED MARSH WREN.— Apparently not common, even in suitable localities.

109. *Certhia familiaris americana*. BROWN CREEPER.— Migrants arrived on Sept. 18.

110. *Sitta carolinensis*. WHITE-BREASTED NUTHATCH.— Common in the open woods during the summer, and becoming abundant in late August and September.

111. *Sitta canadensis*. RED-BREASTED NUTHATCH.— A common migrant after Sept. 18.

112. *Penthestes atricapillus*. CHICKADEE.— Very common, especially during September.

113. *Regulus satrapa*. GOLDEN-CROWNED KINGLET.— Migrating birds were seen on Sept. 23.

114. *Regulus calendula*. RUBY-CROWNED KINGLET.— A common migrant after Sept. 18.

115. *Hylocichla mustelina*. WOOD THRUSH.— Occasionally heard singing on summer evenings. Migrants were seen up to Sept. 18.

116. *Hylocichla ustulata swainsoni*. OLIVE-BACKED THRUSH.— A very common migrant after Sept. 14.

117. *Hylocichla guttata pallasi*. HERMIT THRUSH.— On the hottest

afternoons of August, as well as at all other times, the song of the Hermit could be heard from his perch in the dead top of a tall beach or hemlock. Migrants were seen up to the time I left.

118. *Planesticus migratorius*. ROBIN.—Abundant during the summer, and migrating in large flocks in the latter half of September.

119. *Sialia sialis*. BLUEBIRD.—Rather common in the burned over areas, where dead stumps give suitable breeding places. Large flocks were seen during September.

NOTES ON THE BIRDS OF PIMA COUNTY, ARIZONA.

BY STEPHEN SARGENT VISHER.

IN 'The Auk' for 1886-88, Mr. W. E. D. Scott published an account of the birds of Pinal, Pima, and Gila counties of south central Arizona. The list in the introduction to Bailey's 'Hand-book of Birds of Western United States' is an abstract of Scott's. It mentions about 230 species as occurring in Pima County.

Mr. Herbert Brown, of Tucson, so frequently quoted by Scott, has, since 1888, published in 'The Auk' accounts of the occurrence of (1) Purple Gallinule ('88), (2) Scarlet Ibis ('99), (3) Water-turkey and Tree-duck (1906).

During the past dozen years Mr. Richard D. Lusk of Tucson has done much work, especially with the nesting birds of the mountains. The many records which he has been kind enough to permit me to announce are all based on the capture of specimens.

In August, 1907, and during the months March to September, 1909, I studied the valley in which Tucson lies, intensively, and, in 1909, the Santa Catalina mountain range extensively.

It is not impossible that the lapse of a quarter of a century has changed somewhat the avifauna of this changing region. At any rate a number of species (thirty) may be added to Scott's and Herbert Brown's lists; and the relative abundance, etc., of certain forms may with advantage be restated. However, the announcement of the occurrence of the several additional varieties is not so much the purpose of this article as the desire to add a mite to the

far too meagre knowledge of the habits and songs of many interesting birds.

The following list treats only those (127 species) about which I believe I can contribute something. Of the other hundred observed, Mr. Scott correctly gives their distribution, etc., and the Baileys and Chapman ('Color Key' and 'Camps and Cruises of an Ornithologist') have described their songs, etc., as well or better than I can.

A single asterisk follows twenty-one names and indicates that this species is here reported from an altitude quite different from that given by Scott. Many mountain forms were found migrating along the lowlands.

A double asterisk occurs twenty-eight times and indicates a new record for Pima County.

A triple asterisk marks nineteen species which were found nesting. Mr. Scott recorded them only as migrants or winter visitants.

The Red-eyed Cowbird and the White-headed Woodpecker are four times starred. The Hudsonian Godwit is also out of its prescribed range but unfortunately the record is not absolutely certain.

1. *Colymbus nigricollis californicus*. EARED GREBE.** — Rare Migrant. (Lusk.)
2. *Gavia immer*. LOON.** — Tolerably common migrant. (Lusk.)
Larus sp. Gull.— Occasionally a gull is seen migrating. (Lusk.)
3. *Hydrochelidon nigra surinamensis*. BLACK TERN.** — Common on the few ponds in August.
4. *Pelecanus erythrorhynchos*. WHITE PELICAN.** — Tolerably common migrant. (Lusk.)
5. *Ardea herodias treganzai*. SOUTH-WESTERN BLUE HERON.— Tolerably common summer resident.
6. *Grus mexicana*. SANDHILL CRANE.** — Common migrant. (Lusk.)
7. *Limosa hæmastica*. HUDSONIAN GODWIT.** — A Godwit, very probably of this species, was examined at close range, with binoculars, on a pond near Tucson, September 18. The fact that Scott questions the identification (Marbled) of the godwit he saw is suggestive.
8. *Totanus melanoleucus*. GREATER YELLOW-LEGS.— Rare migrant in spring as well as fall.
9. *Totanus flavipes*. YELLOW-LEGS.** — Tolerably common on a pond near Tucson early in September.
10. *Catoptrophorus semipalmatus inornatus*. WESTERN WILLET.** — Occasional migrant in May about Tucson. Taken by Mr. Herbert Brown.

11. *Charadrius dominicus*. GOLDEN PLOVER.** — Two seen at a pond in the valley August 16.

12. *Callipepla squamata*. SCALED QUAIL.* — A rare resident on the western as well as on the eastern slopes of the Catalina Mountains.

13. *Meleagris gallopavo merriami*. MERRIAM'S TURKEY. — Just about exterminated. A couple were killed in the Santa Catalinas in 1907 by hunters.

14. *Columba fasciata*. BAND-TAILED PIGEON. — Abundant in the mountains above 5000 feet, nesting mainly in the pine zone (7000 feet +) but descending to feed upon the fruit of the manzanita.

15. *Zenaidura macroura carolinensis*. MOURNING DOVE. — Exceedingly abundant in April and May. Flocks of several hundred were seen. Tolerably common in summer.

16. *Melopelia leucoptera*. WHITE-WINGED DOVE. — Abundant summer resident, arriving about April 7. Ranges up to 4000 feet altitude. About the pools in the cañons, flocks of hundreds will gather in midday. Local "nimrods" consider it great sport to slaughter them there.

17. *Chæmepelia passerina palleescens*. MEXICAN GROUND DOVE. — Abundant summer resident near Tucson. The short square tail and reddish tint of its wings in flight makes it very easy to distinguish from the grayish Inca.

18. *Scardafella inca*. INCA DOVE. — Common summer resident about Tucson.

19. *Urubitinga anthracina*. MEXICAN BLACK HAWK.** — An occasional breeder in the wilder parts of the mountains at 5000–7000 feet. The Zone-tailed Hawk and this are called "Mexican Eagles" by the hunters.

20. *Asturina plagiata*. MEXICAN GOSHAWK.* — One pair found breeding at 6000 feet in the oak zone.

21. *Falco columbarius*. PIGEON HAWK.* — Common in March and April near Tucson.

22. *Falco fusco-cœrulescens*. APLOMADO FALCON.** — A specimen of this beauty was taken by Mr. Lusk in the valley.

23. *Aluco pratincola*. BARN OWL*** — An occasional resident. Nestlings captured near Tucson. (Lusk.)

24. *Strix occidentalis*. SPOTTED OWL.** — Breeds rather plentifully in the pine zone of the Catalinas. Taken by Lusk.

25. *Otus flammeolus*. FLAMMULATED SCREECH OWL.** — One taken at 8000 feet in the Catalinas by Lusk.

26. *Speotyto cunicularia hypogæa*. BURROWING OWL. — Several pairs nested in badger holes on the mesa east of Tucson.

27. *Glaucidium phalænoides*. FERRUGINOUS PYGMY OWL. — These birds were very common in the oak zone in June. An imitation of the soft cooing call brought one to a dead twig which hung within arm's length as I lay on my blankets.

28. *Micropallas whitneyi*. ELF OWL. — This, with the former, nests abundantly in the deserted holes of the Gila and Gilded Woodpeckers in the giant cacti, or subaro.

29. **Geococcyx californicus.** ROAD-RUNNER.— Abundant below 4000 feet most of the year. They have been seen leaving the nest of Gambel's Quails carrying an egg in their beak.

30. **Coccyzus americanus occidentalis.** CALIFORNIA CUCKOO.* — A common nester in the mesquite of the Santa Cruz bottoms near Tucson, arriving the second week of June and leaving early in September. Their call is feeble and resembles that of the Black-billed rather than that of the more closely related Yellow-billed Cuckoo. One was seen carrying a young lizard.

31. **Dryobates arizonæ.** ARIZONA WOODPECKER.*** — Breeds commonly in the oak zone. Nests found by Lusk.

32. **Xenopicus albolarvatus.** WHITE-HEADED WOODPECKER.**** — One seen at 7000 feet in the Catalinas May 26. I believe that this bird has not been hitherto recorded from Arizona. Although I did not secure it, identification could scarcely be doubtful.

33. **Sphyrapicus thyroideus.** WILLIAMSON'S SAPSUCKER.— A nest with young found May 25 in the oak zone of the Catalinas.

34. **Antrostomus vociferus macromystax.** STEPHENS'S WHIP-POOR-WILL. — A conspicuous summer resident in the pine zone of the mountains.

35. **Phalænoptilus nuttalli nitidus.** FROSTED POOR-WILL.** — While *nuttalli* breeds only in the mountains, this variety is abundant throughout the summer in the valley. Specimens of both have been taken by Lusk.

36. **Chordeiles acutipennis texensis.** TEXAN NIGHTHAWK.*** — An abundant summer resident in the Lower Sonoran Zone — the valley. Flight is low, almost always within twenty feet of the ground. The only call, soft and bubbling, is heard at dusk only in the early summer.

37. **Aëronautes melanoleucus.** WHITE-THROATED SWIFT.*** — Nests abundantly about the cliffs in the mountains. A few feed in the valley.

38. **Eugenes fulgens.** RIVOLI HUMMINGBIRD.** — Tolerably common breeder above 6000 feet in the Catalina. (Lusk.)

39. **Archilochus alexandri.** BLACK-CHINNED HUMMINGBIRD.* — The only common hummer in March and April. Apparently winters in the lowlands.

40. **Calypte costæ.** COSTA'S HUMMINGBIRD.* — The abundant summer hummer of the town of Tucson is Costa's.

41. **Selasphorus platycercus.** BROAD-TAILED HUMMINGBIRD.— Mr. Lusk says that this is the most numerous hummer breeding in the Catalinas.

42. **Selasphorus rufus.** RUFOUS HUMMINGBIRD.— Lusk believes this species does not nest in the Catalinas.

43. **Stellula calliope.** CALLIOPE HUMMINGBIRD.— Common migrant at 7500 feet. (Lusk.)

44. **Cynanthus latirostris.** BROAD-BILLED HUMMINGBIRD.* — This beauty was breeding abundantly at 3500 feet in Sabino Cañon, in the Catalinas, early in May. Mr. Lusk says they rear another brood in July and August above 7000 feet.

45. **Basilinna leucotis.** WHITE-EARED HUMMINGBIRD.— Mr. H. S.

Swarth shot one in the Santa Rita Mountains in 1903. He announced this in 'The Condor' for 1903. I saw one under very favorable conditions at 3000 feet in the Catalinas May 4.

46. *Tyrannus vociferans*. CASSIN'S KINGBIRD.— Abundant breeder about Tucson, arriving the last of April.

47. *Myiodynastes luteiventris*. SULPHUR-BELLIED FLYCATCHER.** — One pair nested at 5000 feet in Pima Cañon, Catalina Mountains, in 1909. Lusk met a pair in Cañon de Ordo on the north side of the range in 1907.

48. *Myiarchus cinerascens*. ASH-THROATED FLYCATCHER.— Call starts out like that of the Crested but has a peculiar ring at its close.

49. *Myiarchus lawrencei olivascens*. OLIVACEOUS FLYCATCHER.— Seen repeatedly at 3500–4500 feet in the cañons of the Catalinas. Also noted near Tucson in the spring migration.

50. *Sayornis saya*. SAY'S PHEBE.* — A regular though not frequent breeder near Tucson as well as in the mountains. The fledglings have a puttering call suggesting that of the Bluebird.

51. *Contopus pertinax pallidiventris*. COUES'S FLYCATCHER.*** — Called by the Mexicans "the Joseph and Mary bird" because its wonderfully sweet song might be interpreted "Hosea-Maria." Very abundant in the pine forests. Before light, and in the evening they are heard in every direction.

52. *Empidonax difficilis*. WESTERN FLYCATCHER.— Common breeder throughout the mountains from 3000–8000 feet.

53. *Empidonax trailli*. TRAILL'S FLYCATCHER.*** — Locally an abundant summer resident in the mesquite along the Santa Cruz River.

54. *Empidonax wrighti*. WRIGHT'S FLYCATCHER.* — "Probably a rare breeder in the Pine Zone." (Lusk.)

55. *Empidonax fulvifrons pygmæus*. BUFF-BREASTED FLYCATCHER.** — Three pairs bred in the pines of the Catalinas at 7500 feet in 1909. Nests found by Mr. Lusk.

[*Ornithion ridgwayi*. RIDGWAY'S FLYCATCHER.— Mr. H. S. Swarth in his list of summer birds of the Papagoe Indian Reservation (Condor, 1903) tells of the capture of a brood of these rare birds.]

56. *Otocoris alpestris adusta*. SCORCHED HORNED LARK.— Locally a tolerably common resident on the mesa.

57. *Nucifraga columbiana*. CLARKE'S NUTCRACKER.** — Occasionally abundant in the pine and red fir forests of the Catalinas. (Lusk.)

58. *Molothrus ater obscurus*. DWARF COWBIRD.* — A summer resident as high as 5000 feet in the oaks. Arrived May 5.

59. *Tangavius æneus æneus*. WESTERN RED-EYED COWBIRD.*** — At least three pairs spent the summer on the bottom just west of Tucson, and at least four young were matured. For the announcement of the capture see 'The Auk' for July, 1909. For further notes see 'The Auk' for April, 1910, p. 210.

60. *Xanthocephalus xanthocephalus*. YELLOW-HEADED BLACKBIRD.*** — Nests in the valley.

61. *Agelaius phoeniceus sonoriensis*. SONORA REDWING.—Lacking rushes in which to build their nests they place them in mock orange trees along the usually dry irrigation ditches.

62. *Sturnella magna hoopesi*. RIO GRANDE MEADOWLARK.—Abundant winter visitor. One pair spent the summer in one of the few large alfalfa fields. There is no noticeable difference in the songs of this and *S. neglecta*.

63. *Icterus parisorum*. SCOTT'S ORIOLE.—Seen frequently migrating at Tucson. An abundant summer resident of the oak zone in the Catalinas. Their loud, ringing whistle, suggesting the "I-want-to-speak-to-you" call of the Western Meadowlark, was the most noticeable bird note there in June.

64. *Icterus cucullatus nelsoni*. ARIZONA HOODED ORIOLE.—Abundant breeder. They have two songs; the louder and more frequent resembles that of Yellow-headed Blackbird. The other is sung in an undertone and strongly suggests a distant Bobolink. The nest is almost as pendant as that of the Baltimore. I found several between and under the ribs of the leaves of the fan-leaved palm.

65. *Icterus bullocki*. BULLOCK'S ORIOLE.—Common summer resident to 4000 feet, all leaving by the middle of July. Arrivals from the north noted September 12.

66. *Hesperiphona vespertina montana*. WESTERN EVENING GROSBELK.*** — Three pairs nested at 7500 feet in the Santa Catalinas in 1909, and at 9000 feet in 1906. Nests found in 1906 by E. O. Howard and in 1909 by Lusk.

67. *Carpodacus cassinii*. CASSIN'S PURPLE FINCH.—Regular migrant in the mountains. (Lusk.)

68. *Passer domesticus*. ENGLISH SPARROW.** — Now fairly numerous about Tucson, and also Phoenix.

69. *Spinus pinus*. PINE SISKIN.* — A flock seen near Tucson in March. "Abundant in August and September, 1909, at 8000 feet." (Lusk.)

70. *Rhynchophanes mccowni*. MCCOWN'S LONGSPUR.** — One collected by Lusk at Old Fort Lowell October 1, 1900.

71. *Poocetes gramineus confinis*. WESTERN VESPER SPARROW.* — A common migrant, March to May, and September 15 to October at Tucson.

72. *Ammodramus bairdi*. BAIRD'S SPARROW.** — Fairly numerous for a few days late in April near Tucson.

73. *Zonotrichia leucophrys*. WHITE-CROWNED SPARROW.—An abundant winter visitor. They remain several weeks longer than *Z. gambeli* feeding on the blackberry like fruits of the mulberry. Last seen June 8.

74. *Zonotrichia leucophrys gambeli*. GAMBEL'S SPARROW.—Common winter visitor, arriving September 23 and leaving May 13.

75. *Spizella passerina arizonæ*. WESTERN CHIPPING SPARROW.—Abundant migrant in the basin.

76. *Spizella breweri*. BREWER'S SPARROW.** — Several noted in April near Tucson. Taken by Lusk.

77. *Junco phænotus palliatus*. ARIZONA JUNCO.*** — Abundant breeder in the pine and spruce zones of the mountains. This is the only common Junco of the five noted. Its jolly trill was frequently heard, especially in the aspen thickets above 8000 feet.

78. *Amphispiza bilineata deserticola*. DESERT SPARROW. — This is doubtless about as truly a desert bird as any sparrow, and apparently it must go for long intervals without water, for there is no rain nor dew from March, and sometimes February, to the end of June or even the middle of July. However, this somber bird with a cheery trill knows how to drink. I have frequently watched them drink, in June, from a pan which I had placed out. One thirsty fellow took a score of sips before being sated.

Other typical desert birds I noted drinking are: Bendire's Thrasher, Cactus Wren, House Finch, and Gambel's Quail.

79. *Aimophila carpalis*. RUFOUS-WINGED SPARROW. — A brood seen at 5000 feet late in June in the Catalinas.

80. *Aimophila ruficeps scotti*. SCOTT'S SPARROW. — A tolerably common migrant in April in the Santa Cruz valley.

81. *Melospiza melodia fallax*. DESERT SONG SPARROW. — Noted in March and April occasionally. Fairly frequent after the middle of September.

82. *Pipilo fuscus mesoleucus*. CAÑON TOWHEE. — The only abundant summer resident towhee below 5000 feet. Song, *chibe, chibe, chibe, chibe, chib*; instead of *chib, chib, chib* as given in Chapman and Reed.

83. *Oreospiza chlorura*. GREEN-TAILED TOWHEE.*** — Very common in the bottoms in April and September. "Occasionally breeds at low altitudes." (Lusk.)

84. *Pyrrhuloxia sinuata*. ARIZONA PYRRHULOXIA. — Abundant resident about Tucson; frequent at the mouths of the cañons. It has two quite distinct whistles. One is like that of the Cañon Towhee. The other is sharp and very loud. The first song season closes early in May, and the second commences early in June.

85. *Zamelodia melanocephala*. BLACK-HEADED GROSBEEK.*** — Breeds up to 8000 feet. In the valley sparingly, abundantly in the mountains where its sweet song was the dominant notes at midday in June.

86. *Guiraca cærulea lazuli*. WESTERN BLUE GROSBEEK.*** — Common summer resident at Tucson. Arrived May 22 and departed September 28. Its cheery though unambitious song is uttered indifferently from telephone wires or from weeds and mesquite.

87. *Passerina amoena*. LAZULI BUNTING. — Abundant April 13 to end of May in the valley, and in August and September.

88. *Cyanospiza versicolor*. VARIED BUNTING.** — A flock of ten was seen near Tucson May 4. (Brewster, in Auk, 1885, records the capture of a specimen by Stephens south of Tucson.)

89. *Piranga ludoviciana*. WESTERN TANAGER.* — Migrant, feeding on mulberries in spring, near Tucson. Abundant summer resident in the bull pine forest. Song is harsher than that of the following species.

90. **Piranga hepatica.** HEPATIC TANAGER.* — Common migrant about Tucson, and tolerably common summer resident above 6000 feet in the Catalinas. It has the song and sharp call of the Scarlet Tanager. April 29–September 18.

91. **Piranga rubra cooperi.** COOPER'S TANAGER.— A common breeder along ditches in the Santa Cruz Valley. April 22–August 22. Its song is far sweeter than that of the other tanagers. It has a purity which suggests the Rose-breasted Grosbeak. The alarm note is also softer.

92. **Progne subis hesperia.** WESTERN MARTIN.— Very abundant about Tucson in summer, nesting in holes made by the Gila Woodpeckers and the Flickers in the giant cacti. From August 1 to September 20 large flocks were seen daily.

93. **Petrochelidon lunifrons.** CLIFF SWALLOW.** — A few seen at Tucson the last of March.

94. **Iridoprocne bicolor.** TREE SWALLOW.— Seen several times in March and April in the valley.

95. **Tachycineta thalassina lepida.** VIOLET-GREEN SWALLOW.— Seen in large flocks in spring, March 25 to April 8, and in the fall, September 8 in valley; abundant nester in the pines.

96. **Stelgidopteryx serripennis.** ROUGH-WINGED SWALLOW.— By far the most abundant breeding swallow about Tucson in 1909. Left (July 2) after breeding.

97. **Lanivireo solitarius cassinii.** CASSIN'S VIREO.* — An uncommon migrant along the river as well as in the mountains.

98. **Lanivireo solitarius plumbeus.** PLUMBEOUS VIREO.* — A frequent migrant near Tucson; first seen April 6. "Fairly common breeder in the mountains." (Lusk.)

99. **Vireo huttoni stephensi.** STEPHENS'S VIREO.— "Nests twice at 5000 feet in the Catalinas. First brood is out by May 1 and second by July." (Lusk.)

100. **Vireo belli pusillus.** LEAST VIREO.— Common summer resident in valley. Song resembles that of the Yellow Warbler.

101. **Vermivora virginiae.** VIRGINIA'S WARBLER.— Nest found by Mr. Lusk at 7500 feet in the Catalinas.

102. **Vermivora celata lutescens.** LUTESCENT WARBLER.— Common breeder throughout the region. I have found nests in the valley and Mr. Lusk in the forests of the mountains.

103. **Peucedramus olivaceus.** OLIVE WARBLER.*** — Not a rare nester in the higher reaches of the Catalinas. Nests found by Mr. Lusk. He believes that the males do not attain the brightest coloration until at least the third year. Also that the young males sing only snatches of the flowing song of the bright colored adults.

104. **Dendroica auduboni nigrifrons.** BLACK-FRONTED WARBLER.** — Although it is *auduboni* which is so abundant in the lowlands, this is the common resident of the tops of the mountains, where Mr. Lusk has taken nests. *Auduboni* was seen in the lowland as late as the end of May and doubtless nests not far distant.

105. *Dendroica graciae*. GRACE'S WARBLER.*** — Abundant nester above 7000 feet in the Catalinas. This is a ground loving bird, hopping sprightly about. A connected song which tapers off as does the House Wren's is often delivered from a low perch.

106. *Dendroica nigrescens*. BLACK-THROATED GRAY WARBLER.* — Frequent migrant in the valley (March 26–April 14, September). Common summer resident above 6000 feet.

107. *Dendroica townsendi*. TOWNSEND'S WARBLER.* — Noted in March and May near Tucson, and at base of the Catalinas at middle of September.

108. *Dendroica occidentalis*. HERMIT WARBLER. — A pair were seen along the river April 22. "Common migrant in the Catalinas." (Lusk.)

109. *Oporornis tolmiei*. MACGILLIVRAY'S WARBLER. — Common in migrations. Seen early in June near the river, apparently near its nest.

110. *Icteria virens longicauda*. LONG-TAILED CHAT. — The Chat arrived in great numbers late in May. At sunrise I have heard scores singing simultaneously. Departed first week of September.

111. *Wilsonia pusilla pileolata*. PILEOLATED WARBLER. — Abundant migrant March 24–June 2, August 18. The song is very much like that of the Yellow Warbler.

112. *Setophaga picta*. PAINTED REDSTART. — A common summer resident in the forests of the Catalinas. Nests found by Mr. Lusk at 7500 feet. From June 20 to September 18 the immature birds were abundant in the oak zone and along the cañons.

113. *Cardellina rubrifrons*. RED-FACED WARBLER.*** — Common nester in the pine forest. Nest found by Mr. Lusk.

114. *Toxostoma curvirostre palmeri*. PALMER'S THRASHER. — Common resident below 4000 feet. Mr. Couch was correct in saying that the song is "remarkably melodious and attractive," and because it is soft and not very frequent it is all the more pleasing.

115. *Toxostoma bendirei*. BENDIRE'S THRASHER. — Abundant resident about Tucson. Song resembles that of the Brown Thrasher. The song season is over by mid-April, and the young then fledged. The birds of this region do not seem to adapt their nesting period to the rainy seasons. There is a small amount of rain in December and January; then everything slowly dries up until July and August when considerable rain falls. In these months the insect life and all other food is far more abundant than before. One would think that the birds of this region would therefore have their young hatched early in July instead of in May. Characteristic desert birds which bring out their broods early are:

Mid-April: Bendire's Thrasher and Cactus Wren (the latter occasionally rears a second brood in August).

Early in May: Plumbeous Gnat-catcher.

Mid-May: Say's Phoebe, Vermilion Flycatcher, Desert Sparrow.

End of May: Mourning Dove, Bullock's Oriole, House Finch, Lutescent Warbler.

Mid-June: Gambel's Quail, Palmer's Thrasher.

116. *Catherpes mexicanus conspersus*. CAÑON WREN.—A common resident about the lava hills in the valley as well as in the mountains, where it is abundant up to 6500 feet. Song very loud and ringing; *che*, repeated six times on an ascending scale and ending with a squeak.

117. *Thryomanes bewicki leucogaster*. BAIRD'S WREN.—Common migrant and rare breeder in the valley, abundant in the oak zone. Song distinctly suggests that of the eastern Towhee.

118. *Troglodytes aëdon parkmani*. WESTERN HOUSE WREN.* — Tolerably frequent in March, April and September in the valley; abundant summer resident above 7000 feet in the Catalinas.

119. *Certhia familiaris albescens*. MEXICAN CREEPER.*** — Abundant at 7500 feet in the pines of the Catalinas in June; apparently nesting.

120. *Sitta pygmæa*. PYGMY NUTHATCH.*** — One seen near Tucson April 10. "A fairly frequent nester in the pine forests." (Lusk.)

121. *Penthestes sclateri*. MEXICAN CHICKADEE.** — "Common nester in the pines" (Lusk.) Seen in the oak zone in April.

122. *Regulus calendula*. RUBY-CROWNED KINGLET.*** — Abundant until the end of April at low altitudes. "Breeds in the Catalinas above 8000 feet." (Lusk.)

123. *Myadestes townsendi*. TOWNSEND'S SOLITAIRE.—Several seen at 6000 feet in the Catalinas early in April. Mr. Lusk says they occasionally breed at about that altitude.

124. *Hylocichla guttata auduboni*. AUDUBON'S HERMIT THRUSH.*** — Early in June their song was heard repeatedly, especially in the fir forested valleys above 8000 feet.

125. *Planesticus migratorius propinquus*. WESTERN ROBIN.*** — Several pairs nest, quite after the fashion of the eastern bird, about the scattered cabins and clearings in the coniferous zone of the Catalinas. A Robin is occasionally seen on the lawns of Tucson.

126. *Sialia mexicana occidentalis*. WESTERN BLUEBIRD.—"Rare breeder in the spruces at 9000 feet in the Catalinas." (Lusk.)

127. *Sialia mexicana bairdi*. CHESTNUT-BACKED BLUEBIRD.** — Abundant breeder in the pines. Taken by Lusk.

THE BLACK-THROATED GREEN WARBLER.

BY CORDELIA J. STANWOOD.

Plates XIII and XIV.

THE Black-throated Green Warbler is the light opera of the birds. When he is in the treetops I find myself unconsciously humming the words that suggest his two common ditties, they are so marked in time and catchy. His voice is suggestive of the drowsy summer days, the languor of the breeze dreamily swaying the pines, spruces, firs and hemlocks. It recalls the incense of evergreens, the fragrance of the wild strawberry, the delicate perfume of the linnea. No other bird voice is so potent to evoke that particular spell of the northern woods.

At Ellsworth, Maine, the Black-throated Green Warbler is one of the early warblers to arrive in the spring. It comes just as the buds of the larch are opening, and is always to be looked for in or near swamp growths, where gray birch, larch, and evergreens flourish. After the nest is completed, there is a long period of nearly two months when the song of the Black-throated Green and Magnolia Warblers can be heard at any time of the day in the high tops of primeval spruces and pines. In the early part of the season the Black-throated Green Warbler feeds all over any kind of tree but prefers deciduous; in the fall they frequent these same growths, where the swamps at this season are often dry. At this time of year, they sometimes descend to the ground and forage among the newly fallen leaves.

The bird is quick in its movements, but often spends periods of some length on one tree, frequently coming down low to peep inquisitively at an observer, once in a while flying toward a person as if to alight on his hand or head. This mark of curiosity is shown by both the Magnolia and the Black-throated Green, particularly during migration.

Two common songs of the Black-throated Green Warbler are easily suggested by words; a third, less common, is not so easily reduced to syllables. The first is always readily recalled by the words *read-y, stead-y, read-y, stead-y*. The second, by the words *sweet, O, how sweet, sweet, sweet, O how sweet*; or again, *take it,*

take it, lei-sure-ly; take it, take it, lei-sure-ly. What I speak of as the third song, I have heard only in one locality as if sung by but one bird. At different times I have translated it in three syllables, *chee, chee, chee, read-y; te, te, ti, de-ee;* or *sui, sui, sui, su-i.* By some each translation might be regarded as a separate song.

It was in the twilight that I came upon the beautiful, fragile little nest of the Black-throated Green Warbler for the first time. On hasty inspection it looked like a mass of moss. A closer investigation showed the suggestive moss-like mass to be a nest, shaped almost as gracefully as a Tiffany vase. It was located on the border of a swamp, in the vertical crotch of a hemlock, about six feet from the ground. I could just touch the eggs with the tips of my fingers. To see them, I had to climb the neighboring tree.

There were three eggs in the nest, creamy-white, minutely speckled all over with reddish brown dots, and ringed with reddish-brown around the larger end. On one of the eggs the spots were confluent. The eggs were small and broad like the Magnolia Warbler's.

The nest was well set down into the crotch of a branch. It could be lifted out of the support very easily as it was not attached to any of the twigs. The sides were deeply grooved by the surrounding stems, the material bunching out between them. The foundation of the structure was spruce twigs, cedar bark fibre, spider's silk, cord, thin strips of white birch bark, and roots; the lining consisted of cedar bark fibre, roots and hay. One might almost say the material was miscellaneous. The nest was so fragile that the light shone through the walls in many places. The hemlock foliage well concealed the tiny abode from any but an inquisitive observer.

June 19 (1907), there were four eggs in the nest, and the bird was sitting. I walked back and forth under the tree and talked to her for some time before she would abandon her charge. As I climbed the next tree for a peep at the eggs, the bird scolded me somewhat and acted a little as if she were going to fly at me. She alighted within three feet of where I was sitting. I slipped down out of the tree and sat a yard or so away, and the bird returned to her duties again immediately.

On the fourth day when I visited the neighboring tree, the little bird flew to a branch within a foot of my face, not showing the least alarm. While she was perched beside me, I could not resist talking to her. The little creature chirped softly as if to say, "I don't like to have you here, but since you are, did you ever see such a lovely nest, and such beautiful eggs?"

In twelve days, on July 1, the beautiful little mother had completed the task of incubation. A few seconds after I appeared under the tree, the bird fell from the nest heavily to the ground, like a dead weight. She acted as if she were lame, and her wing broken. In this way she crept along some ten or fifteen feet. As I turned to get down out of the tree, I saw her on the ground, apparently helpless; when I reached the foot of the tree, she was in the branches looking most deliberately for food. When the female was feigning helplessness, her colors seemed much brighter than usual. She looked like an emerald set in gold, a winged gem.

On the third day the young birds were growing rapidly, burnt-orange in color, covered with an abundant supply of burnt-umber down. The quills and pin feathers showed blue-gray through the skin, and the eyes were just beginning to open.

On the seventh day the nestlings were large and well covered with grayish olive brown feathers on the back. They had buffy wing bars and were grayish-yellow-white underneath. Both birds scolded me severely, particularly the male bird. The female came very close and looked at me a great deal. Finally she dropped to a branch where she fluttered with an apparently broken wing, dropped helplessly to the ground, crawled along with seeming difficulty, but finally succeeded in dragging herself up onto a log. It was almost as if she said, "If you must take some one, take me." The birds chirped piteously until I left the neighborhood.

The eighth day the Black-throated Green Warblers were still in the nest, but when we attempted to arrange them slightly for a photograph, they all spilled over the side. We found three and put them back into the nest. During all this time the parent birds lingered around, sometimes scolding. Again the female clung to a branch with disabled wing. The moment we left the nest, the old birds returned to minister to the young. Tempting moths and caterpillars were thrust down their hungry little throats.

In the afternoon I returned and found the fourth fledgling perched on a flat rock in the sun. I attempted to return it to the nest, but just as it touched the side it gave a loud chirp that frightened the nestlings and the parent birds. The young dropped from the nest into the dry beech leaves and dwarf cornel foliage; the old birds were in a perfect frenzy. The mother bird poised herself in the air between me and the young and chirped in great distress. I decided to go at once without trying to explain my good intentions further.

The liquid prattle of young birds in the trees attracted me the next morning. Moving cautiously in that direction, I was startled by the loud scolding notes of the Black-throated Green Warbler. There was not the slightest doubt that the bird recognized me as her enemy of the day before. The little warblers were safe, and apparently very hungry, in the treetops.

May 25, 1908, I found two Black-throated Green Warblers building in the swamp. They were gathering bits of fine grass when I first noticed them, and flew to the fir where they were beginning a nest, rather reluctantly depositing the bits of hay with that foolish look birds assume when caught near the nest. First they laid knots of spider's silk and little curls of white birch bark in the shape of the nest, on the horizontal fork about midway of a branch six feet long. Next bits of fine grass, a little usnea moss, and cedar bark fibre. Both the male and female worked on the nest, until observed, the female shaping it with the breast each time they added a bit of material. Around the top were carefully laid the finest gray spruce twigs. These were bound together with masses of fine white spider's silk. The white curls of birch bark, the much weathered twigs, the fluffy shining bands and knots of spider's silk, made a very dainty looking structure. After the first morning, I did not see the male about the nest. As a general thing, I find that, if birds are observed building, the male usually leaves his part of the work to the female. The lady bird continued to shape the nest with her breast, turning around and around, as if swinging on a central pivot, just her beak and tail showing above the rim. If I came too near, she stood up in the nest as if to fly. If I withdrew to a respectful distance, say three yards, she went on with her work of shaping the nest. On

the second day the rim of the nest seemed about completed. It was narrower than the rest of the cup and beautifully turned. Nothing to speak of had been done to the bottom. On the fourth day, by touching the inside of the nest with the tips of my fingers, I judged that the lining was about finished. It consisted of rabbit-hair and horse-hair, felted or woven together so as to be very thick and firm. Between the foundation of twigs and bark and the hair lining was a layer of fine hay of which the mouth of the nest was chiefly shaped. I never saw a more substantial looking little nest. It was also one of the most beautiful I have ever found, a perfect harmony in grays.

After the fourth day I never surprised the birds in the vicinity of the nest. I began to fear that they had deserted. It was not until the 6th of June that I found the first egg. The four eggs were laid on four consecutive days, before 9 A. M., and the bird began to incubate before 10.30 A. M. of the fourth day. By standing on a rock under the tree, and pulling the branch down slightly, I could just see the eggs. I went often to the nest during the twelve days the female was incubating. When I put my face almost against the nest and talked to her, she simply turned her head and looked at me, and chipped two or three times very gently. She would leave the eggs only when I put up my hand as if to touch her.

On the fourth day the eyes of the nestlings were open a narrow slit; the wing quills were one half inch long; the pin feathers were indicated on the feather tracts; and the whole bird had taken on a more or less dark-brown leathery appearance.

On the sixth day I remained a long time near the nest. The parent birds came with food. The male called *sint, sint* in a sharp metallic tone all the time I was there and refused to feed the young. After a time the female ceased scolding and brought food several times, and carried away excrement. Then she crouched on the side of the nest, holding on by her claws which were thrust firmly into the walls.

On the eighth day, the nest was simply stuffed full of little green-gray birds, strikingly like the color of the nest.

On the tenth day, I pulled the nest almost down to my face to see the wing bars of the nestlings. The old birds chirped a little but were not annoyed.

On the eleventh day, quite early in the morning, as I neared the nesting place, I heard the fledglings calling from the treetops. Soon I caught a glimpse of the Black-throated Green Warblers marshalling their little band away.

The nest measured, inside, $2\frac{1}{4}$ inches in length and $1\frac{3}{4}$ in width; outside, 4 inches in length, 3 in width, and 2 in depth.

The four nests of 1909 were of the two types before mentioned, those built in a crotch or with crotch-like effects, and those sitting on twigs connected with the branch. One was like the dainty gem-like structure of the year before but a bit more dainty, containing much more spider's silk; the bird was four days constructing the foundation, and four days felting together the lining of rabbit-hair, horse-hair and human-hair. She then rested a day before laying the first egg. The other three nests were less exquisitely curved and put together more clumsily; but if one had never seen the work of the gentle artist who executed the first, he would have been charmed with the clever skill of the modellers of the other three.

They were located from four to eight feet up, three in fir trees, one in a spruce. One of the nests of this year contained a fibrous bark other than cedar; two had a few feathers in the lining, and the other was lined with black plant fibre; the rest of the materials were similar to those in the second nest described.

NOTES ON THE SUMMER BIRDS OF KENTUCKY AND TENNESSEE.

BY ARTHUR H. HOWELL.

IN the course of field work for the Biological Survey during the seasons of 1908 and 1909 I visited a number of localities in Kentucky and Tennessee and made notes on the birds observed. Comparatively little time was spent at each locality, so that the lists are necessarily far from complete, but in view of the very limited amount of published information on the birds of these two States it seems best to place on record the results of my observations.

For the sake of convenience in future reference the lists from each State will be presented separately.

KENTUCKY.

IN 1908, two localities in the extreme eastern part of the State were visited, namely: Big Black Mountain on July 24 and Barboursville, August 9-13. Big Black Mountain is in the eastern part of Harlan County, close to the Virginia line. It is a part of the Cumberland Range and is the highest mountain in the State (4100 feet). Barboursville is in Knox County, on the Cumberland River, at an altitude of about 1000 feet.

IN 1909, five localities in the central and eastern parts of the State were visited, namely: Rockport, June 23, 24; Hawesville, June 25-28; Mammoth Cave, June 29-July 5; Midway, July 6-11; and Jackson, July 12-14.

The greater part of the State is in the Upper Austral Zone. The Lower Austral Zone is found in the extreme western part in the Mississippi and Ohio bottoms as far east as Paducah. The Transition Zone occupies only the summit of Big Black Mountain above 3000 feet and small isolated areas in the Cumberland Range at somewhat lower altitudes, in shaded ravines having a northern exposure. These narrow tongues of the Transition Zone reach in some places as low as 1600 feet.

List of Birds Observed.

Butorides virescens. GREEN HERON.—Several were seen at Midway, July 6–11.

Oxyechus vociferus. KILLDEER.—At Midway, in July, a flock of twenty or thirty was observed for several days feeding about the wet spots in a tobacco patch.

Colinus virginianus. BOB-WHITE.—Common at Midway and other points in the lowlands; rather scarce in the foothill region, but a few were noted at Barbourville and along Clover Fork at the foot of Big Black Mountain.

Zenaidura macroura carolinensis. MOURNING DOVE.—Common at Midway; a few seen at Hawesville and Mammoth Cave.

Cathartes aura septentrionalis. TURKEY BUZZARD.—Several seen at Hawesville and Mammoth Cave.

Otus asio. SCREECH OWL.—One heard in Barbourville.

Coccyzus americanus. YELLOW-BILLED CUCKOO.—Rather common at Midway; one or two seen at Mammoth Cave.

Dryobates villosus auduboni. SOUTHERN HAIRY WOODPECKER.—Common at Barbourville, where one specimen of this subspecies was taken; one seen at Mammoth Cave.

Dryobates pubescens medianus. DOWNY WOODPECKER.—Several seen and one collected at Barbourville; one seen on Big Black Mountain at 3000 feet, others at Jackson, Midway, and Mammoth Cave.

Melanerpes erythrocephalus. RED-HEADED WOODPECKER.—Common at Midway.

Centurus carolinus. RED-BELLIED WOODPECKER.—One seen at Hawesville, June 25.

Colaptes auratus luteus. NORTHERN FLICKER.—Common at Midway; scarce at Mammoth Cave and Barbourville; one seen at 3000 feet on Big Black Mountain.

Antrostomus vociferus. WHIPPOORWILL.—Several heard singing at Mammoth Cave, June 30.

Chætura pelagica. CHIMNEY SWIFT.—Common at nearly all localities visited.

Archilochus colubris. RUBY-THROATED HUMMINGBIRD.—One seen at 2000 feet at base of Big Black Mountain; several at Barbourville and Mammoth Cave.

Tyrannus tyrannus. KINGBIRD.—A few seen at Barbourville; not observed at other localities.

Myiarchus crinitus. CRESTED FLYCATCHER.—Seen in small numbers at Mammoth Cave, Hawesville, Midway, and Jackson.

Sayornis phoebe. PHOEBE.—Numerous at Hawesville, nesting on cliffs; a few seen at Barbourville, Jackson, and Mammoth Cave; two at the summit of Big Black Mountain.

Myiochanes virens. WOOD PEWEE.—Common at Barbourville; a few observed at Jackson and Mammoth Cave, and on Big Black Mountain up to 4000 feet.

Empidonax virescens. ACADIAN FLYCATCHER.—Observed in small numbers at Mammoth Cave, Jackson, Barbourville, and the base of Big Black Mountain (2000 feet).

Otocoris alpestris praticola. PRAIRIE HORNED LARK.—A pair was seen in a public road at Midway, July 9, 1909.

Cyanocitta cristata. BLUE JAY.—Numerous at Rockport; a few seen at Midway, Mammoth Cave, and Barbourville.

Corvus brachyrhynchos. CROW.—Common at Midway; three or four seen at Barbourville. They are not partial to the foothill country.

Agelaius phoeniceus. RED-WINGED BLACKBIRD.—Common at Midway, where young able to fly well were seen July 6-11; ten or twelve seen in a small marsh at Barbourville.

Sturnella magna. MEADOWLARK.—Common at Midway and Rockport; ten or fifteen seen in a wet marsh at Barbourville, where they evidently breed.

Icterus spurius. ORCHARD ORIOLE.—A few seen at Rockport, Hawesville, and Midway.

Icterus galbula. BALTIMORE ORIOLE.—A few noted at Barbourville and one at Rockport.

Quiscalus quiscula. PURPLE GRACKLE.—A flock of 10 or 15 birds was seen at Barbourville and a specimen shot from this flock on August 12 proved to be of this form.

Quiscalus quiscula æneus. BRONZED GRACKLE.—Abundant at Midway, July 6-11, gathering in good sized flocks about the cultivated fields and roosting at night in large companies in the shade trees in town; one specimen was taken.

Astragalinus tristis. GOLDFINCH.—Numerous at Barbourville and about the base of Big Black Mountain; seen also at the summit of the mountain and at Jackson.

Poecetes gramineus. VESPER SPARROW.—Several heard singing at Midway, July 6-11.

Ammodramus savannarum australis. GRASSHOPPER SPARROW.—Quite common at Midway and Barbourville; specimen taken at Midway.

Spizella passerina. CHIPPING SPARROW.—Fairly common at most localities in the lowlands and foothills; a small flock seen at the summit of Big Black Mountain.

Spizella pusilla. FIELD SPARROW.—Common, both on the mountains and in the lowlands.

Junco hyemalis carolinensis. CAROLINA JUNCO.—A few seen at the summit of Big Black Mountain (July 24) where they evidently breed; one young specimen taken.

Melospiza melodia. SONG SPARROW.—Abundant at Midway; several noted along the Ohio River at Hawesville, June 25. They apparently do

not occur in the breeding season much farther down the Ohio Valley, as none were found at Mount Vernon, Indiana; nor were any seen in the foothill region about Jackson, Kentucky.

Cardinalis cardinalis. CARDINAL.—Common at all localities in the lowlands; ranges up to at least 2500 feet on Big Black Mountain.

Zamelodia ludoviciana. ROSE-BREADED GROSBILL.—A full-grown young male was taken, July 24, at 2500 feet on Clover Fork, at base of Big Black Mountain.

Passerina cyanea. INDIGO BIRD.—Common in suitable situations at all localities; ranges to the top of Big Black Mountain.

Spiza americana. BLACK-THROATED BUNTING.—Quite common at Midway, July 6–11, but not seen elsewhere.

Piranga erythromelas. SCARLET Tanager.—One noted at Rockport and several at Mammoth Cave.

Piranga rubra. SUMMER Tanager.—A few seen at Barboursville, Jackson, Hawesville, and Mammoth Cave.

Progne subis. PURPLE MARTIN.—Common at Barboursville, Jackson and Midway; a few seen at Rockport and Hawesville.

Hirundo erythrogastra. BARN SWALLOW.—Common at Midway; four or five seen at Barboursville (August 9–13); at Mammoth Cave several pairs were nesting about the hotel buildings.

Stelgidopteryx serripennis. ROUGH-WINGED SWALLOW.—Numerous at Hawesville along the Ohio River.

Vireosylva olivacea. RED-EYED VIREO.—Fairly common both in the lowlands and on the mountains.

Vireosylva gilva. WARBLING VIREO.—One seen and heard singing at Barboursville, August 9.

Lanivireo flavifrons. YELLOW-THROATED VIREO.—Rather common at Barboursville; a few noted at Jackson, Hawesville, and Mammoth Cave.

Lanivireo solitarius alticola. MOUNTAIN SOLITARY VIREO.—Common on Big Black Mountain from about 3400 feet to the summit. Several heard singing freely and two adult males taken.

Vireo griseus. WHITE-EYED VIREO.—One seen at base of Big Black Mountain; others at Barboursville, Jackson, and Hawesville.

Mniotilta varia. BLACK AND WHITE WARBLER.—Common at all altitudes on Big Black Mountain; a few seen at Barboursville, Jackson, and Hawesville.

Helmitheros vermivorus. WORM-EATING WARBLER.—Scarce; one seen at Barboursville, and others at Hawesville and Mammoth Cave.

Compsothlypis americana rhamphina. WESTERN PARULA WARBLER.—Several heard singing at Jackson and at Mammoth Cave; specimens taken at each place are referable to this form.

Dendroica aestiva. YELLOW WARBLER.—Several seen at Jackson, and on Clover Fork at base of Big Black Mountain.

Dendroica caerulescens cairnsi. CAIRNS'S WARBLER.—Several seen on Big Black Mountain between 3400 and 4000 feet altitude; one young bird just able to fly taken at 4000 feet.

Dendroica cerulea. CERULEAN WARBLER.—One full-grown immature specimen was taken, July 24, at the summit of Big Black Mountain. Heard singing at Jackson, Hawesville, and Mammoth Cave.

Dendroica fusca. BLACKBURNIAN WARBLER.—Common in heavy timber at the summit of Big Black Mountain, July 24; two immature specimens taken.

Dendroica virens. BLACK-THROATED GREEN WARBLER.—Common at the summit of Big Black Mountain, July 24, where two immature specimens were taken. A full-grown immature bird was taken in the foothills at Jackson, July 14, at 1000 feet altitude.

Dendroica discolor. PRAIRIE WARBLER.—One taken at Barboursville August 10.

Seiurus aurocapillus. OVEN-BIRD.—One seen at 3000 feet altitude on Big Black Mountain; heard singing at Hawesville and Mammoth Cave.

Seiurus motacilla. LOUISIANA WATER-THRUSH.—Common along Clover Fork at base of Big Black Mountain; seen up to 3000 feet on the mountain; noted also at Jackson and Mammoth Cave.

Oporornis formosa. KENTUCKY WARBLER.—Fairly common at Mammoth Cave, Hawesville, Jackson, Barboursville, and on Big Black Mountain below 3000 feet.

Geothlypis trichas. MARYLAND YELLOW-THROAT.—Common at Barboursville, where moulting adults and young were taken, August 9–13; several noted on Clover Fork at base of Big Black Mountain; common at Midway and Jackson (specimen); noted at Rockport and Mammoth Cave.

Icteria virens. YELLOW-BREASTED CHAT.—Noted in small numbers at Barboursville, Jackson, Hawesville, and Mammoth Cave. ¹

Wilsonia citrina. HOODED WARBLER.—Several seen on Big Black Mountain between 2000 and 3000 feet altitude; fairly common at Jackson, Hawesville, and Mammoth Cave.

Wilsonia canadensis. CANADIAN WARBLER.—One heard singing, July 24, at 3000 feet on Big Black Mountain. ¹

Setophaga ruticilla. REDSTART.—Several seen between 3000 and 4000 feet on Big Black Mountain; one at Mammoth Cave.

Mimus polyglottos. MOCKINGBIRD.—Fairly common at Midway; a few seen at Hawesville, Mammoth Cave and Rockport.

Dumetella carolinensis. CATBIRD.—Common at Midway and Hawesville; a few seen at Mammoth Cave and Barboursville.

Toxostoma rufum. BROWN THRASHER.—A few seen at Midway and Barboursville.

Thryothorus ludovicianus. CAROLINA WREN.—Common at all localities; several seen at 3750 feet altitude, near the summit of Big Black Mountain.

Thryomanes bewicki. BEWICK'S WREN.—Seen in small numbers at Barboursville, Jackson, Hawesville, Midway, Rockport, and Mammoth Cave.

¹ A specimen was taken the day previous just across the line in Virginia (Big Stone Gap).

Cistothorus stellaris. SHORT-BILLED MARSH WREN.—A few pairs were living in a small marsh at Barboursville, August 9–13; they probably breed there, but no nests were noticed.

Sitta carolinensis. WHITE-BREASTED NUTHATCH.—Several noted on Big Black Mountain between 3000 and 4000 feet altitude; one at Barboursville and one at Mammoth Cave.

Bæolophus bicolor. TUFTED TITMOUSE.—Common at Barboursville; several seen at Mammoth Cave.

Penthestes carolinensis. CAROLINA CHICKADEE.—Several noted at Barboursville and Mammoth Cave; immature specimens taken, July 24, at the summit of Big Black Mountain.

Polioptila cærulea. BLUE-GRAY GNATCATCHER.—Common at Barboursville; a few noted at Mammoth Cave.

Hylocichla mustelina. WOOD THRUSH.—Common at Mammoth Cave and Jackson; one seen at Barboursville; several on Big Black Mountain between 2000 and 3000 feet.

Planesticus migratorius achrusterus. CAROLINIAN ROBIN.—Common at Midway (specimen taken) and Mammoth Cave; one noted at Barboursville; said to nest on the summit of Big Black Mountain, but I saw none.

Sialis sialis. BLUEBIRD.—Fairly common at Barboursville and Mammoth Cave.

TENNESSEE.

The following localities in Tennessee were visited in the summer of 1908:

Briceville, Coal Creek, and Cross Mountain, August 14–19; High Cliff, August 20–22; Soddy, and Walden Ridge west of Soddy, August 25–29; Lawrenceburg, September 12–15.

Cross Mountain (3550 feet) is the highest point on the Cumberland Range in Tennessee, and is situated about three miles northwest of Briceville, on the boundary between Anderson and Campbell counties. High Cliff is in Campbell County, about three miles east of Jellico, at the point where the Clear Fork of the Cumberland emerges from the cañon which it follows through the mountains. The altitude of the valley at High Cliff is 1000 feet, and Pine Mountain at this point reaches an altitude of 2100 feet. Soddy (Rathburn Station) is at the east base of Walden Ridge, about 18 miles northeast of Chattanooga. Walden Ridge is a fairly level plateau varying in altitude from 1500 to 2400 feet, and at this point is about 10 miles wide.

The greater part of eastern Tennessee is included in the Upper Austral Zone. The Transition Zone is found mainly on the mountain summits above 3000 feet and in cool gulches down to 2000 feet. In a few isolated localities (as at High Cliff) the zone appears on steep north slopes as low as 1000 feet. The Lower Austral Zone covers the western part of the State as far east as Lawrence County.

List of Birds Observed.

Butorides virescens. GREEN HERON.—One seen, August 26, on the lower part of Soddy Creek, near the Tennessee River.

Colinus virginianus. BOB-WHITE.—Scarce in the mountains; a few noted at High Cliff and at Coal Creek and one seen on top of Cross Mountain; fairly common on Walden Ridge and at Lawrenceburg.

Bonasa umbellus. RUFFED GROUSE.—Occurs sparingly on Walden Ridge, but through constant persecution has been greatly reduced in numbers during recent years. In the region about Cross Mountain, grouse are now very scarce, though formerly common.

Meleagris gallopavo silvestris. WILD TURKEY.—Occurs in moderate numbers on Walden Ridge, but is fast disappearing, as it is shot at all seasons by the residents. Two men told of killing all but one from a bunch of six or seven the day before I arrived.

Zenaidura macroura carolinensis. MOURNING DOVE.—Fairly common at Lawrenceburg and on Walden Ridge.

Cathartes aura septentrionalis. TURKEY BUZZARD.—Fairly common throughout the State.

Catharista urubu. BLACK VULTURE.—Three or four seen at Lawrenceburg, September 12–15; said to occur on Walden Ridge only in winter.

Falco sparverius. SPARROW HAWK.—A pair was seen on the summit of Cross Mountain; not observed elsewhere.

Otus asio. SCREECH OWL.—One was heard calling at Briceville and another at Lawrenceburg.

Ceryle alcyon. BELTED KINGFISHER.—Several seen at Lawrenceburg.

Dryobates villosus auduboni. SOUTHERN HAIRY WOODPECKER.—Fairly common on Cross Mountain and the surrounding valleys; specimens taken there and one at High Cliff prove to be the southern form.

Dryobates pubescens medianus. DOWNY WOODPECKER.—Two specimens taken at 3400 feet on Cross Mountain; several seen on Walden Ridge.

Phlœotomus pileatus. PILEATED WOODPECKER.—Common on Walden Ridge where I heard six or eight and shot one in a day's walk; a few were noted also on Cross Mountain.

Melanerpes erythrocephalus. RED-HEADED WOODPECKER.—One immature bird seen on the summit of Cross Mountain, August 15.

Colaptes auratus luteus. NORTHERN FLICKER.—Not common; a few noted at High Cliff, Walden Ridge, Lawrenceburg, and Briceville; one specimen taken on the summit of Cross Mountain.

Antrostomus vociferus. WHIP-POOR-WILL.—One heard singing at Briceville, August 14.

Chordeiles virginianus. NIGHTHAWK.—One seen at Briceville, August 14; a flock of 15 or 20 seen near Knoxville, August 23.

Chætura pelagica. CHIMNEY SWIFT.—Rather scarce at Briceville; two or three seen about the summit of Cross Mountain, August 15; common at Lawrenceburg, September 12–15; at Knoxville, on August 23 they were abundant over the city and I had an opportunity to observe their method of going to roost. About 6 P. M. I noticed the swifts all gathered into one immense flock and circling about in the vicinity of the Colonial Hotel. They moved mainly in one direction, but occasionally turned and circled for a few minutes in the opposite direction. They were evidently interested in a large square chimney on a mantel manufactory near the hotel, for this was the center of their constantly narrowing circle, and frequently one or more would dart down and make a feint to enter the chimney, only to dash off again and join the flock. At 6.25 they began to go in, and with the exception of a few intervals of less than 30 seconds, there was a constant stream of swifts entering the chimney for 13 minutes. At 6.38 the last ones went in, and only four or five Purple Martins remained in the air. I estimated the number of swifts at about 5000, but there may have been many more than that. How so many were able to find a resting place in a single chimney remains to me a mystery.

Archilochus colubris. RUBY-THROATED HUMMINGBIRD.—Several seen at Briceville and one at High Cliff.

Tyrannus tyrannus. KINGBIRD.—The only one observed was near Coal Creek, August 19.

Sayornis phœbe. PHŒBE.—A few observed at each locality visited.

Myiochanes virens. WOOD PEWEE.—Common both on the mountains and in the valleys.

Empidonax virescens. ACADIAN FLYCATCHER.—A few noted in the region about Briceville.

Cyanocitta cristata. BLUE JAY.—Common at Lawrenceburg; a few noted at High Cliff and on Walden Ridge.

Corvus corax principalis. NORTHERN RAVEN.—Ravens are reported to occur in small numbers on Walden Ridge, where they live in the wild, rough gulches.

Corvus brachyrhynchos. CROW.—Seen in small numbers at High Cliff, Walden Ridge, and Lawrenceburg.

Sturnella magna argutula. SOUTHERN MEADOWLARK.—Three seen and one taken, September 10, at Fayetteville, where they evidently breed; they are said so occur at Soddy and on Walden Ridge only in winter.

Quiscalus quiscula. PURPLE GRACKLE.—Large flocks were seen at Fayetteville, September 10; one specimen taken here was of this form,

but doubtless *æneus* was well represented also. No Grackles were observed in east Tennessee.

***Astragalinus tristis*.** GOLDFINCH.—Fairly common at Briceville, High Cliff, and Soddy.

***Spizella passerina*.** CHIPPING SPARROW.—Fairly common at High Cliff and Cross Mountain.

***Spizella pusilla*.** FIELD SPARROW.—Common at High Cliff, Cross Mountain, and on Walden Ridge.

***Pipilo erythrophthalmus*.** TOWHEE.—Several noted at the summit of Cross Mountain and on Walden Ridge, at both of which localities it breeds; seen at Lawrenceburg, August 12–15.

***Cardinalis cardinalis*.** CARDINAL.—Fairly common at all localities visited; seen at 2500 feet on Cross Mountain.

***Piranga erythromelas*.** SCARLET TANAGER.—Several noted at about 2000 feet on Cross Mountain, where it breeds.

***Piranga rubra*.** SUMMER TANAGER.—Observed in small numbers at High Cliff, Briceville, Soddy, and Lawrenceburg.

***Progne subis*.** PURPLE MARTIN.—Breeds commonly on Walden Ridge; said to leave for the south about August 1; four or five were seen at Knoxville, August 23, with a large flock of Chimney Swifts.

***Vireosylva olivacea*.** RED-EYED VIREO.—A few noted near Briceville.

***Lanivireo flavifrons*.** YELLOW-THROATED VIREO.—Several seen and one taken at the summit of Cross Mountain, August 17; heard singing at High Cliff, August 22 and at Lawrenceburg, September 14.

***Vireo griseus*.** WHITE-EYED VIREO.—A few noted at Coal Creek and High Cliff; heard singing at Lawrenceburg, September 14.

***Mniotilta varia*.** BLACK AND WHITE WARBLER.—Fairly common at all altitudes on Cross Mountain; one seen at High Cliff, August 21.

***Helmitheros vermivorus*.** WORM-EATING WARBLER.—One seen at 3400 feet on Cross Mountain.

***Dendroica cærulescens cairnsi*.** CAIRNS'S WARBLER.—Two males were taken August 15 and 17 at 3400 feet on Cross Mountain; they probably breed on the mountain.

***Dendroica pensylvanica*.** CHESTNUT-SIDED WARBLER.—One specimen taken August 25 on Walden Ridge.

***Dendroica virens*.** BLACK-THROATED GREEN WARBLER.—Six or more were seen at 3400 feet on Cross Mountain; an adult female and immature specimens were taken, August 15 and 17; they undoubtedly breed there. One or two were seen on Walden Ridge, August 27.

***Dendroica discolor*.** PRAIRIE WARBLER.—Two seen and one taken on Walden Ridge, August 27.

***Seiurus aurocapillus*.** OVENBIRD.—Several pairs were seen between 1000 and 3300 feet on Cross Mountain.

***Seiurus motacilla*.** LOUISIANA WATER-THRUSH.—Two or three were seen near Briceville.

***Oporornis formosa*.** KENTUCKY WARBLER.—A few seen at Briceville and Soddy; one taken at 3400 feet on Cross Mountain.

Geothlypis trichas. MARYLAND YELLOW-THROAT.— One specimen taken at Briceville; others noted at High Cliff and Lawrenceburg.

Wilsonia citrina. HOODED WARBLER.— Common on Cross Mountain to 3400 feet; a few noted at High Cliff and in the gulches on Walden Ridge.

Mimus polyglottos. MOCKINGBIRD.— Common at Fayetteville and Lawrenceburg; not observed in eastern Tennessee.

Dumetella carolinensis. CATBIRD.— Fairly common at Briceville, Soddy, and Lawrenceburg.

Toxostoma rufum. BROWN THRASHER.— A few seen at each locality visited.

Thryothorus ludovicianus. CAROLINA WREN.— Common, both in the valleys and up to 3500 feet on Cross Mountain.

Thryomanes bewicki. BEWICK'S WREN.— Observed in small numbers at Briceville, High Cliff, Soddy, and Lawrenceburg.

Sitta carolinensis. WHITE-BREASTED NUTHATCH.— A few seen at High Cliff, Walden Ridge, and Cross Mountain (1000 to 3400 feet).

Bæolophus bicolor. TUFTED TITMOUSE.— Noted in small numbers at each locality visited; fairly common on Cross Mountain up to 3000 feet.

Penthestes carolinensis. CAROLINA CHICKADEE.— Fairly common on Cross Mountain up to 3300 feet; noted at High Cliff, Walden Ridge, and Lawrenceburg.

Poliopitila cærulea. BLUE-GRAY GNATCATCHER.— A few observed at Briceville.

Hylocichla mustelina. WOOD THRUSH.— Observed in small numbers at Briceville, Soddy, and High Cliff.

Planesticus migratorius achrusterus. CAROLINIAN ROBIN.— One or two seen at Lawrenceburg, September 12-15.

Sialia sialis. BLUEBIRD.— Noted in small numbers at High Cliff, Cross Mountain (1000-3500 feet), Walden Ridge, and Lawrenceburg.



NESTS OF BLACK-THROATED GREEN WARBLER.



NESTS OF BLACK-THROATED GREEN WARBLER.
Young 8 days old.

BIRD PHOTOGRAPHING IN THE CAROLINAS.

BY B. S. BOWDISH.

Plates XV-XVII.

WITH AN ANNOTATED LIST OF THE BIRDS OBSERVED.

Compiled by P. B. Philipp.

OUR party, consisting of Messrs. P. B. Philipp, Clinton G. Abbott and B. S. Bowdish, left New York on the morning of June 9, 1909, and reached Charleston, South Carolina, on the following morning, June 10. We went at once to the Museum and saw Professor Rea and from him learned the exact location of two heron rookeries near Charleston Harbor, which were the main object of our visit to Charleston.

We were also directed to a Captain Fairchild, who runs a forty foot gasoline boat, the 'Ethel', a model example of comfort for our purpose, and whose dusky first mate was known as 'Jawn'.

As we passed out from the dock we took several memento views of the water-front, the custom house, and a lighthouse relief ship. Further down the bay we caught snaps of historic old Fort Sumter where was fired the first gun in the Civil War, and a little further out met a torpedo boat destroyer coming in.

For miles the coast is bordered with a wide fringe of salt marsh, intersected with open water courses or channels of varying width and depth, which cut the marsh up into islands, large and small. It was through such scenes that we proceeded to the rookery. Great and Little Blue, Louisiana and Green Herons, and one Snowy Heron were seen feeding in the marsh, and we noted Royal, Common and Least Terns, Laughing Gulls, a Willet and an Oystercatcher.

As we approached Secessionville Rookery we passed the little settlement Secessionville on the opposite side of the channel. Soon we could see the Herons sitting on their nests and feeding in a strip of marsh about the edge of the island. The size of the island was estimated at two and one-half to three acres. It was grown with dense patches of bay and sparkleberry bushes and cabbage palms, interspersed with open spaces of salt grass and prickly pear, the whole bordered with a strip of salt marsh. The heron nests were scattered

thickly through the bushes at a height varying from two to fifteen feet. The ground under the nests was well above tide and perfectly dry. We estimated the colony to consist of about 300 pairs of Louisiana Herons, 200 pairs of Green Herons, 100 pairs of Little Blue Herons, 25 pairs of Black-crowned Night Herons, and possibly 50 pairs of Snowy Herons, and the nests of a fairly numerous colony of Boat-tailed Grackles were scattered among the heron nests, generally placed higher and more in the slender tips of the branches. Only one photograph (an unsatisfactory one) of one of these birds was secured. Some of the young herons had left the nests and large droves of them were scrambling through the tops of the bushes. A large proportion of the nests held young in varying stages of development. A fair number of nests still held eggs, but they were mostly well along in incubation. Plumers had shot in this colony about three weeks before our visit, and we found two piles of the remains of Snowy Herons, eight in each, from which the plumes had been torn. Notwithstanding this the herons were all surprisingly fearless and unsuspicious. Most of the young of the grackle colony were out of the nest and well developed; some nests still contained young, and in two or three of these nests were one or two eggs, and one nest contained three fresh eggs.

We returned to Charleston that evening, stopping for a few minutes at Morris Island where there was a breeding colony of some twenty-five pairs of Least Terns and a few Willets and Wilson's Plovers. The next day, June 11, was spent at the Secessionville rookery in a largely fruitless effort to secure photographs. During a considerable portion of this time Mr. Abbott remained on Morris Island, securing some very good photographs of Least Terns about their eggs. We were caught on the rookery island by low tide and with great difficulty waded the "soap flats" to the row boat that was to take us back to the 'Ethel', being obliged to leave part of our outfit and return for it about one o'clock A. M. The herons became especially active about dusk when many returned with food for the young. Some few remained active during the night but apparently the majority went to roost. Insufficient time and an error of judgment resulted in our failing to get practically any heron photographs of value.

The next day, June 12, we started on the 'Ethel' for Bulls Bay,

stopping en route to photograph nests and eggs of Least Tern and a Wilson's Plover nest. Most of the Least Terns had two eggs, a few had only one and two had three. We also stopped for a very short time at Bird Island Shoal where some fifty Brown Pelicans and one hundred Royal Terns, with a few Black Skimmers, a large number of small sandpipers and one or two Willets were congregated. It was a well patronized feeding ground but there was no sign of any nesting. At Vessel Reef, a sandspit of about one half acre, there were about 1000 Black Skimmers, 500 Brown Pelicans and 75 Royal Terns. The Pelicans were not nesting but laying had just commenced with the Terns and Skimmers. We also noted one Oystercatcher nesting-hollow with one egg, and another with two.

We reached our final destination in Bulls Bay, at Raccoon Key, about five P. M. This is an island of considerable size and some of its sand dunes are fairly high. There were a good many Wilson's Plovers nesting here and perhaps fifty pairs of Least Terns. There were also quite a few Willets but they were much harassed by minks and Fish Crows; one nest with three eggs and another with one being the only ones we found that had not been robbed. In two cases we found the remains of birds that had been caught on the nests by minks and killed, while the empty shells in the nests beside them showed where the eggs had been sucked. We found one Oystercatcher's nest with two eggs. We remained at Raccoon Key till the following afternoon, when we returned to Charleston, having secured some very good photographs of Wilson's Plover, as well as of nests and eggs. On June 14 we secured the services of young Mr. Grimble with his gasolene boat, to visit the second heron rookery, which was on an island in the salt marsh on his father's property. This trip to and from the island took up the most of two days and was unsuccessful, as apparently the only nesting birds were a few Green, two or three Louisiana, and one pair of Black-crowned Night Herons. Boat-tailed Grackles and Red-winged Blackbirds had also nested there. Two dead Snowy Herons and remains of several Little Blue Herons were found. The evening flight of herons into the rookery indicated that it was being used as a roosting place by a considerable number of birds. A Black Vulture was seen in the rookery.

We left Charleston on the evening of the 15th, for Lake Ellis, North Carolina, which we reached about noon the following day

(June 16). Camp Bryan, belonging to several wealthy sportsmen who lease the surrounding area as a game preserve, had been kindly put at our disposal by the owners, and here we found Mr. H. H. Brimley, curator of the Raleigh Museum, awaiting us. A day or two later Mr. Nichols, the son of one of the owners, joined our party. We spent the afternoon in the rain, hunting King Rails' nests, of which we found one containing ten eggs, in the short marsh grass that covered a large part of Lake Ellis. Two nests of the Least Bittern with three eggs each, and one with five young, were found in this grass, in very different sites from those of normal nests that we had seen in the north. The flock of fourteen American Egrets which regularly fed at the lake was also seen.

The 17th was a cloudy day, raining at times, and as Mr. Philipp was sick, very little was accomplished. On the 18th a trip was made to Great Lake where there was a very interesting colony of Florida Cormorants, nearly thirty scattering nests of Osprey, seventeen of the Great Blue Heron, sixteen nests of the Little Blue Heron with eggs, and several of the Black-crowned Night Heron. The Cormorant rookery was situated on the two opposite points of a bay. I made a diagram on the spot, showing the trees in which most of the nests were placed, the approximate positions of these trees and the general height and number of nests counted. Only one nest with eggs was seen; a few were empty; the majority held young in various stages of growth, mostly well advanced. It was at Great Lake that the flock of fourteen American Egrets roosted but the nesting site is not known.

June 19 was largely consumed in securing photographs of the Least Bittern at its nest, and searching for nests of the King Rail. A nest of the Florida Gallinule was found containing four eggs which were just about hatching. Probably some had previously hatched. June 20 was spent at Great Lake, and a nest of the Prothonotary Warbler was found, containing well grown young. Fish Crows had entirely destroyed the eggs in the Little Blue Heron colony. The photographic feature of June 21 was the securing of a photograph of the Florida Gallinule at her nest, thereby proving that the nest was not a King Rail's as had been previously supposed. The camera was tripped with a thread about 150 yards long, the operator being concealed at the far end. At this distance it was impossible to dis-

tinguish the identity of the bird, and development alone revealed it and established a new breeding record for North Carolina. Some photographs of the Prothonotary Warbler were also secured, and a nest of the Pied-billed Grebe with four eggs was found.

June 22 was a comparatively uneventful day, and on the 23d we started for Royal Shoals. We spent that afternoon in a heron rookery near Beaufort, where the Louisiana, Little Blue, Green, Black-crowned Night and a few Snowy Herons had evidently nested in considerable numbers. The growth was taller and the nests at greater height than at the Secessionville rookery. The young were so well developed that they were able to travel well ahead of us, over the bush tops, as we forced our way through the tangled growth. Some shooting was reported to have been done in this rookery and the remains of a few dead birds were seen.

On the following morning the Audubon patrol boat 'Dutcher', captained by Warden Jenette, came in and we started on her for Royal Shoals, reaching there late that afternoon. This low sand spit, which had been a breeding place for a colony of Royal Terns, estimated in 1908 at 7,000 birds, had been washed over in the midst of that breeding season, with great loss to the birds, and the Royal Terns had not appeared in 1909 until the night before we reached there, when the first stragglers were arriving. There were about 250 Common Terns, 200 Least Terns, 200 Black Skimmers and 100 Laughing Gulls nesting on the island, which was a very narrow fishhook-shaped formation, with small bushes, weeds and grass at the shank end, where the Laughing Gulls bred. The Skimmers' nests were also mostly in that vicinity, as well as the principal colony of Least Terns, with nests of the Common Tern interspersed and also scattered about the hook. The Skimmers were just commencing to lay, though one nest was seen with five eggs. Most of the Common Terns' nests had three eggs, some two and one, and one nest held six eggs, undoubtedly laid by two birds. A few Least Terns had hatched; most of the nests had two eggs and a few one. The Laughing Gulls had nests of two and three eggs, and Warden Jenette reported that some young had hatched and were hiding in the weeds.

We remained at Royal Shoals till about three p. m. the next day, June 25. More Royal Terns arrived and thirty-six were counted

in one flock. On this date the warden reported his count of eggs as follows: Common Tern, 248; Least Tern, 107 and 12 young birds; Black Skimmer, 60. We started for Ocracoke ahead of one of the warden's 'living gales' or 'dangerous squalls', but reached there alive and well, about four-thirty p. m.

On the following day Mr. Abbott left us, bound for New York, while the rest of the party started for Buxton on Cape Hatteras. At noon we stopped at Miller Lump where a colony of about one thousand Royal Terns were breeding. Most of them had one egg, several two, and a few young had hatched. One Gull-billed Tern was seen and the warden reported that a pair had bred. There were also three pairs of Cabot's Tern, each with a single egg, in the colony. The birds had laid their eggs but a few inches apart on the highest part of the island and the area occupied was not over twenty feet in diameter and grouped about a warning sign. After doing some photographing we went on to Davis Lumps, on one of which a colony of about one hundred Black Skimmers were congregated, perhaps preparing to breed, and about twenty-five pairs of Common Terns were nesting. The latter had a number of young, some several days old, as well as eggs. We went on to Buxton, where we were entertained over the next day at the home of Dr. Davis, and spent a quiet Sunday.

On June 28 we returned to Miller Lump and did some more photographing. It was an occasion of rare pleasure to find the Royal Terns so fearless. When we sat in plain view, and not over one hundred feet from the eggs, the birds quickly returned, and by erecting a blind of the sea-weed drift, in great mats, over a framework of sticks, we photographed the birds at a range of fifteen feet or less.

Leaving for Ocracoke we stopped at Legged Lump, which is the property of the North Carolina Audubon Society. Notwithstanding the warning sign, the birds breeding here had been robbed regularly. Some two hundred Skimmers and a few Common and Least Terns were attempting to breed. We found one nest of the Common Tern with three eggs, one with two and one with one; one nest of the Least Tern with one egg and three with two each; two nests of the Skimmer with one egg each, four with two each, three with three each. Many empty nests of the Common Tern and Skimmer were seen.



ROYAL TERNS, PAMLICO SOUND, N. C.



BLACK SKIMMER.



YOUNG LEAST TERNS.



FLORIDA CORMORANT.



FLORIDA GALLINULE, LAKE ELLIS, N. C.

On the docks at Moorehead City on June 29 we met and talked with A. T. Piner, who was one of the most active plumers in former times, and plied his trade along the Atlantic coast from Maine to Florida, killing all species of terns, the American Egret and Snowy Heron. The price he had received for terns' wings was one and one half cents a pair, and at this he had made good wages! He thought that he had himself killed twenty thousand birds, besides those killed by his assistants. He and one assistant would each skin one hundred Least Terns in twenty-four hours. When they found a colony of the lovely little Least Terns they were able to kill every adult bird, because the parental instinct brought the last one back to its nesting site. And then came the closing chapter in his gruesome tale. Many young already hatched at the time of the slaughter were left parentless. Many eggs, of course, never hatched, but others that were approaching the completion of incubation hatched in the sun, and the tiny chicks joined the ranks of their older brothers. This man had seen the tiny chicks gathered on the beach so thickly that they looked like drift brought up by the tide, huddled at the water's edge, dipping their little beaks in the salt wavelets in a vain endeavor to assuage the terrible pangs that dead parents could never again provide against. Those who have not visited these semitropical islets, whose flat, sandy surfaces lie just above the level of the lapping waves, can have no conception of what it is to feel the awful pangs of hunger and thirst, where water, sand and air reflect back again and again the all-pervading, burning rays of the sun. What a satisfaction to feel that this unspeakably brutal trade has been almost eliminated, as far as our own coasts are concerned, by the work so earnestly commenced by the Bird Protection Committee of the American Ornithologists' Union, and so ably carried on by the Audubon Societies.

ANNOTATED LIST OF BIRDS OBSERVED.

Compiled by P. B. Philipp.

1. **Podilymbus podiceps.** PIED-BILLED GREBE.—Abundant at Ellis Lake, N. C., where it was seen daily June 16–20. Breeds in the reedy marshes surrounding the lake; three nests were found June 16 and 20, one with 1 egg, one with 5 fresh eggs, and one with 4 fresh eggs; on June 20, one newly hatched chick was captured after a hard chase. The nests were all in patches of reeds where there was good diving water.

Mr. H. H. Brimley, of the North Carolina Museum, informs me that this nesting is the first record for the State. The birds have not heretofore been found nesting at Lake Ellis.

2. **Larus atricilla.** LAUGHING GULL; BLACK HEAD; SUMMER GULL.—A fair sized breeding colony of this gull was observed on Royal Shoal, Pamlico Sound, N. C., comprising some two hundred and fifty birds. The colony was visited on June 24, and at this date many of the nests were empty, the young having hatched; many other nests had 2 and 3 eggs, all advanced in incubation. The nests on the shoal were all carefully hidden in the rank beach grass and low bushes, and were found by following paths made by the birds. This gull was not noted breeding elsewhere on the trip.

3. **Gelochelidon nilotica.** GULL-BILLED TERN.—Seen only in Pamlico Sound, N. C., and there rare. A single tern of this species was seen June 25, in a large colony of Common Terns (*Sterna hirundo*), on Royal Shoal. On Miller Lump, off Buxton, further up the sound, a pair were seen June 26, which the warden told me had nested the previous week, the young having hatched. These could not be found.

4. **Sterna maxima.** ROYAL TERN.—Common in suitable localities along the coasts and among the shallow bays of North and South Carolina. Four breeding colonies were found. The first was situated on Vessel Reef, a low sand key in Bulls Bay, S. C., visited on June 12. About 75 birds were seen there and nesting had just begun, 3 fresh eggs being found. The second colony was on Royal Shoal, Pamlico Sound, N. C. Here, instead of the enormous numbers of the preceding season, estimated at some 7,000 birds, only fifty were found. On June 24 one fresh egg was noted. The third and largest colony was found on June 26, on Miller Lump, a small low sand bar in Pamlico Sound, lying in a broad expanse of very shallow water. This colony comprised 1,000 adult birds; the nesting was advanced. Some 258 good eggs were counted, usually one egg to a set, though a few doubles were found; there were also many young, some of which were able to run about. All the eggs were advanced in incubation. The fourth breeding colony visited was on Davis Lump, a small sand bar near Miller Lump. Here about 60 pairs of birds were breeding. Thirty-two eggs were counted, for the most part advanced in incubation; half a dozen newly hatched young were also seen.

Owing to the protection afforded by the North Carolina Audubon Society, the colonies in Pamlico Sound were in fair condition and the birds very tame, allowing a very near approach.

5. *Sterna sandvicensis acutiflvida*. CABOT'S TERN.—Rare in Pamlico Sound, N. C., the only locality in which it was seen. On June 26, six birds of this tropical species were found on Miller Lump, off Buxton, in Pamlico Sound. Here also three nesting hollows were found, each containing a single egg advanced in incubation. The birds were breeding with a large colony of Royal Terns (*Sterna maxima*).

Mr. T. G. Pearson tells me that in 1908 about 75 pairs of this tern bred on Royal Shoal.

6. *Sterna hirundo*. COMMON TERN; WILSON'S TERN; BIG STRIKER.—Very abundant in Pamlico Sound, N. C., where it was found breeding. Rare along the beaches and keys along the South Carolina coast near Charleston, and at Bulls Bay, S. C.; not found breeding there.

The largest colony visited was on Royal Shoal, where 248 eggs were counted on June 24, in a small area on the point of the shoal. The eggs were 2 or 3 in a nest; one nest seen having 6, probably laid by two birds. Other good sized colonies were found on Davis Lump June 26 (20 pairs); on Legged Lump June 28 (12 pairs).

Most of the eggs taken were advanced in incubation and many young had already appeared.

7. *Sterna antillarum*. LEAST TERN; LITTLE STRIKER.—Fairly common on the South Carolina coast. Seen at Morris Island, Charleston Harbor; at Raccoon Key, Bulls Bay, S. C. Common in Pamlico Sound, N. C.; seen on all the suitable lumps and keys. Breeds in each of these localities.

Four fair sized breeding colonies were visited. The first was on Morris Island in Charleston Harbor, where 50 pairs of birds were seen, and thirty nests with eggs, which on June 10 were fresh; a second colony of some 100 birds was found on June 12 on the south end of Raccoon Key, and ten or a dozen nests with fresh eggs. The third and largest colony was on Royal Shoal, Pamlico Sound, N. C., where some 200 birds were breeding. 107 eggs and 12 young being counted June 24, 25; a small colony of 20 pairs was found June 25 on Davis Lump, and 37 eggs counted; the eggs taken from these Pamlico Sound colonies were incubated.

Several other scattering pairs were seen on the small keys and banks in Pamlico Sound, and the birds were seen daily during our visit there. These colonies have greatly increased during the last few years, due to the activities of the North Carolina Audubon Society, which has provided a warden to watch them.

8. *Hydrochelidon nigra surinamensis*. BLACK TERN.—Rare and accidental in Pamlico Sound, where two individuals were seen, one on Royal Shoal June 25, and the other on Miller Lump off Buxton on the same date. I could not find that it breeds.

9. *Rynchops nigra*. BLACK SKIMMER.—Abundant in suitable locali-

ties along the coasts and shallow bays of both North and South Carolina, breeding where found. This bird was seen daily June 10–15 around Bulls Bay, S. C., and June 24–29 in Pamlico Sound, N. C. The birds are late breeders. In the largest colony found, of some 1,000 birds, on Vessel Reef, Bulls Bay, the birds had just started laying, one and two eggs being laid; on Royal Shoal June 24, the nests had 3 or 4 eggs, and one was found with 5 slightly incubated. No young were seen in any colony visited.

10. **Phalacrocorax auritus floridanus.** FLORIDA CORMORANT.—A large colony of a cormorant ascribed to this species was found breeding at Great Lake, Jones County, N. C. The birds were nesting in a group of yellow pines on the edge of the lake, the nests being situated from 15 to 75 feet from the ground. On the date visited, June 18, all the nests but one had young in various stages of growth, from newly hatched to almost full-fledged. One nest contained 3 eggs advanced in incubation. One hundred and twenty-three used nests were found. Mr. Pearson tells me that this colony, which has been at the lake for some years, is slowly decreasing.

11. **Pelecanus occidentalis.** BROWN PELICAN.—Not uncommon a few miles north of Charleston, S. C. (Bulls Bay), where on June 12 over five hundred birds were seen. Said to breed near Bulls Bay, but we could not find the breeding place.

Casual in Pamlico Sound, N. C. On Legged Lump, in the sound, on June 28, four birds were seen roosting on a sand spit. Not known to breed.

12. **Anas boschas.** MALLARD.—Very rare at Lake Ellis, N. C., in summer. One was seen by Mr. Abbott at the lake June 18. The remains of a duck of this species, partially eaten by minks, was found in the marsh around Ellis Lake; probably a wounded bird unable to leave in the spring.

13. **Aix sponsa.** WOOD DUCK.—Abundant at Ellis Lake, N. C., where it breeds in the big gum timber around the lake. Seen daily, singly or in pairs; on one occasion a flock of six was noted. Common also on the Hatteras Banks at Buxton, where it breeds.

14. **Ixobrychus exilis.** LEAST BITTERN.—Abundant at Ellis Lake, N. C., where it breeds in the thick growth of wild rice and rushes around the lake. Four nests were found, June 16–20, one of which had five well grown young, and two others eggs advanced in incubation; one nest had one fresh egg.

15. **Ardea herodias.** GREAT BLUE HERON.—Occurs abundantly in the marshes of the Sea Islands, S. C., where seen June 10, feeding in the salt creeks and ponds. Not found breeding there.

Abundant at Great Lake, Jones Co., N. C., where it breeds. Seen June 18 and 20. At this date all the young had hatched and some were as large as the old birds. In one cypress tree at the lake, not twenty feet high, were eleven used nests. In another cypress, two nests with grown young were noted and four other scattering nests.

16. **Herodias egretta.** AMERICAN EGRET; LONG WHITE.—A small

flock of this heron was seen daily June 16–20 at Ellis Lake, N. C., feeding in the marshes around the lake. Not known to breed, although reported by Mr. Brimley as seen during the probable breeding season.

17. *Egretta candidissima*. SNOWY EGRET.—About 50 pairs of this egret were found in a large heron rookery visited June 10 at Secessionville, S. C. The birds were breeding in company with other herons, and had succeeded in raising many young, which were scrambling about in the bay bushes. Seven nests with eggs were found, which were advanced in incubation. This rookery had been raided by plumers, and several piles of egret bodies, denuded of plumes, were found among the bushes.

18. *Hydranassa tricolor ruficollis*. LOUISIANA HERON.—This heron was breeding in large numbers at the rookery at Secessionville, S. C., the number being estimated at 300 pairs. On June 11, there were both young and eggs, many of the young being fully fledged. The nests were in low bay bushes, from 8 to 15 feet from the ground.

19. *Florida cærulea*. LITTLE BLUE HERON.—Two nesting colonies were found. One, at Secessionville, S. C., where about 100 pairs were breeding in bay bushes with other herons, was visited June 10. The nests held both eggs and young, many of the latter being able to fly, and all the eggs were advanced in incubation. The nests were in low bay bushes, 8 to 10 feet from the ground. The other colony was situated at Great Lake where sixteen nests containing fresh eggs were found June 18, in some low bushes around the edge of the lake. These eggs were later destroyed by Fish Crows.

20. *Butorides virescens*. LITTLE GREEN HERON.—Very abundant in a heron rookery visited June 10 and 11 at Secessionville, S. C., where it was breeding with several other larger herons. Here were found about 200 pairs, which for the most part had young in various stages of growth; a few eggs were found advanced in incubation. Another colony was found on Grimble Island, June 14, where about 50 occupied nests were seen.

21. *Nycticorax nycticorax nævius*. BLACK-CROWNED NIGHT HERON.—About 30 pairs were found in the heron rookery at Secessionville, S. C., June 10 and 11, where we noted eggs and young in various stages of growth, many of the latter having left the nests. At Great Lake, Jones County, N. C., two nests with well grown young were found June 18. Nowhere as common as the other herons.

22. *Rallus elegans*. KING RAIL.—Common at Ellis Lake, N. C., where it breeds in the wet, reedy marshes around the lake. The bird was seen or heard daily June 16–20. A nest found June 16 contained 10 eggs advanced in incubation. This nest was placed in a thick patch of rushes in a wet part of the marsh, and the rushes were arched over the eggs, a typical situation.

23. *Rallus crepitans*. CLAPPER RAIL.—Very abundant in the extensive salt marshes around Charleston Harbor and Bulls Bay, S. C., where it was seen or heard daily June 10–15. One nest, with four fresh eggs, was taken June 14 on St. James Island, S. C. Several empty nests, apparently used, were found June 12 in the marsh behind Raccoon Key, Bulls Bay, S. C.

24. *Gallinula galeata*. FLORIDA GALLINULE.—Rare and unusual at Lake Ellis, N. C. One nest was found in a wet part of the marsh at the lake on June 21, which contained four eggs on the point of hatching. No other nests were found, nor other birds seen. Mr. H. H. Brimley tells me that this nesting record is a new one for the State.

25. *Tringa canutus*. KNOT; ROBIN SNIPE; FOOL-BIRD.—Very common on the beaches and keys of Bulls Bay, S. C., where several flocks were seen June 12 and 13, particularly on Vessel Reef, Bird Island Shoal, and Raccoon Key.

26. *Pisobia minutilla*. LEAST SANDPIPER.

27. *Ereunetes pusillus*. SEMIPALMATED SANDPIPER.

Several flocks of small sandpipers, which probably included both these species, were seen on Bird Island Shoal, Bulls Bay, S. C., June 12, and on Legged Lump in Pamlico Sound on June 28. None were collected.

28. *Catoptrophorus semipalmata*. WILLET.—Very common on Raccoon Key, Bulls Bay, and on Morris and St. James Islands, S. C., where the birds were seen June 10–15.

The largest colony found was on Raccoon Key, where nests were found. The Willet builds quite a nest of bits of drift and dried seaweed, usually on the ground in a bunch of the black grass. Two nests found were in such position; one contained one egg and the other three, all fresh. The birds here had been badly persecuted by Fish Crows and minks; broken and sucked eggs were found everywhere, and two nests were found in which the skeleton of the bird was lying on sucked eggs, the work of minks.

The Willet is the most striking bird of the region, and is the noisiest. One cannot approach their haunts without one or more coming to greet him with shrill cries. Flying around close to one, they scream and shriek, hovering with trembling wings and open beak. They seem to make as much noise when away from their nest as when near it, and give no indication of its location. A beautiful species, characteristic of the southern marshes and beaches.

29. *Numenius longirostris*. LONG-BILLED CURLEW; JACK CURLEW.—A flock of six was seen June 12 on Bird Island Shoal, Bulls Bay, S. C., feeding with other shore birds.

There is a persistent idea among the fishermen and baymen of the region that this species breeds here; we did not find a nest, however, and did not hear of any nest ever being found.

30. *Ochthodromus wilsonius*. WILSON'S PLOVER.—Very common among the islands and along the sandy beaches off the South Carolina coast, being especially abundant on Raccoon Key, Bulls Bay, S. C. This plover was seen daily June 10–15. Nests were found June 10–12 on Morris Island and Raccoon Key. Of six nests, five had three eggs each and the other two, all fresh. The eggs are laid among the shells in shallow hollows, and are very hard to find. The birds fool one repeatedly, squatting down among the shells as if on eggs when far from the nests, and seldom disclose their location.

31. **Arenaria morinella.** TURNSTONE.—Three birds of this species were seen on Bird Island Shoal, Bulls Bay, S. C., on June 12. The birds were feeding in company with some other shore birds, and were very tame, allowing a close approach.

32. **Hæmatopus palliatus.** OYSTER-CATCHER; SEA CROW.—Common in suitable locations along the North and South Carolina coasts, breeding where found. These birds were seen all around Charleston Harbor and Bulls Bay, S. C., June 10–15, and at Royal Shoal, Pamlico Sound, N. C. Nests were found June 12 on Vessel Reef, Bulls Bay, one with two eggs and one with one, fresh; another nest was found on Raccoon Key, Bulls Bay, with two eggs slightly incubated.

33. **Zenaidura macroura carolinensis.** MOURNING DOVE.—Common on St. James Island, S. C., where several were seen June 15. One was seen in the oak scrub near Beaufort, N. C. No nests were found.

34. **Chæmepelia passerina terrestris.** GROUND DOVE.—One pair was seen by Mr. Abbott on St. James Island, June 15.

35. **Cathartes aura septentrionalis.** TURKEY VULTURE; TURKEY BUZZARD.—Very abundant around Charleston, S. C., and all through the Sea Islands, around Lake Ellis, and on the Hatteras Banks. Seen almost daily June 10–28. Several were noted around the heron rookery at Secessionville, S. C. Common in the Market Place at Charleston.

36. **Catharista urubu.** BLACK VULTURE; CARRION CROW.—Very common around the Sea Islands, and in and about the city of Charleston, S. C., where they may be seen daily in the Market Place. A large flock of some 25 birds was seen June 15 on St. James Island, S. C., where there was a roost.

Casual at Ellis Lake, N. C., one bird being noted there June 18.

37. **Elanoides forficatus.** SWALLOW-TAILED KITE.—Rare but regular at Lake Ellis, N. C., where on June 18 a male of this species was noted. Mr. H. H. Brimley tells me that one or more of these birds are seen each summer at the lake. I could not find that it bred there.

38. **Buteo lineatus.** RED-SHOULDERED HAWK.—Common at Lake Ellis and Great Lake, N. C., where it was seen or heard daily June 16–20. One was seen at Buxton on the Hatteras Banks June 27. Mr. H. H. Brimley tells me they breed around Lake Ellis and Havelock, N. C.

39. **Falco sparverius.** SPARROW HAWK.—One seen by Mr. Abbott near Havelock Station, N. C., June 26.

40. **Pandion haliaëtus carolinensis.** OSPREY; FISH HAWK.—Abundant at Lake Ellis and at Great Lake, N. C., where there is a large breeding colony. On June 20, thirty occupied nests were counted around Great Lake, which had young in them of various stages of growth, many being ready to fly. One nest held three young, but two was the usual number. Some of the nests were huge structures; all were in cypress trees, usually out in the lake itself, and from fifteen to fifty feet above the water.

41. **Strix varia.** BARRED OWL.—Not a common resident at Lake Ellis. The hoot of the owl was heard near camp on June 17 and 20. Said to breed in the heavy sweet gum timber around Great Lake.

42. **Otus asio.** SCREECH OWL.— Heard nightly around camp at Ellis Lake, June 16–20, a bird having a roosting place in a sweet gum directly over the camp. Said to breed.

43. **Bubo virginianus.** GREAT HORNED OWL.— Not common around Lake Ellis, N. C. One was seen by Mr. Abbott June 18, in the heavy timber around Great Lake, N. C. Not found breeding there. "Seen more commonly in the colder months" (Brimley).

44. **Coccyzus americanus.** YELLOW-BILLED CUCKOO.— Common at Lake Ellis, N. C. Heard and seen daily June 16–20, in the sweet gum thickets near camp. No nest was found, "but the species breeds" (Brimley).

45. **Ceryle alcyon.** BELTED KINGFISHER.— One bird seen June 16 at Newberne, N. C. "Common in eastern North Carolina, breeding in suitable localities" (Brimley).

46. **Dryobates villosus.** HAIRY WOODPECKER.— Not common at Lake Ellis, N. C. This species was recorded by Mr. Abbott as occurring in the heavy timber between Ellis and Great Lakes, where it was seen June 18. Another was seen feeding on a dead pine stump near Havelock, N. C., June 16.

47. **Dryobates pubescens.** SOUTHERN DOWNY WOODPECKER.— Common at Lake Ellis, N. C. Recorded by Mr. Abbott June 17 and 18 near camp at the lake, and in the woods at Great Lake. No nests were found, but Mr. H. H. Brimley tells me it is a common nesting bird.

48. **Phloeotomus pileatus abieticola.** NORTHERN PILEATED WOODPECKER.— Rare around Lake Ellis, N. C. A bird ascribed to this species was seen by Mr. Abbott in the large sweet gum timber between Lake Ellis and Great Lake on June 18.

49. **Melanerpes erythrocephalus.** RED-HEADED WOODPECKER.— Not uncommon at Lake Ellis, N. C., "where it breeds" (Brimley). Mr. Abbott saw this species at camp on Lake Ellis June 17, and in the woods at Great Lake June 18.

50. **Antrostomus carolinensis.** CHUCK-WILL'S-WIDOW.— Rare around Lake Ellis, N. C. Mr. Bowdish records an individual which he heard calling in a bit of timber near the Havelock Station, N. C.

51. **Chordeiles virginianus.** NIGHT HAWK; BULL BAT.— Not uncommon among the Sea Islands, S. C. A pair of this species was seen June 12 on Raccoon Key, Bulls Bay, and another on St. James Island, S. C., June 15. They breed, but we found no nests. A single bird was seen by Mr. Bowdish at Havelock Station, N. C., June 18.

52. **Archilochus colubris.** RUBY-THROATED HUMMINGBIRD.— One seen by Mr. Abbott on June 20, on the road between Havelock and Lake Ellis, N. C.

53. **Chætura pelagica.** CHIMNEY SWIFT.— Common around Charleston, S. C., and at Ellis Lake, N. C.; at the latter place a nest with four eggs was taken June 17, from an old chimney flue in the roof of our camp. In the Great Lake woods several birds were seen diving into a huge dead gum tree.

54. **Tyrannus tyrannus.** KINGBIRD; BEEBIRD.—Common on St. James Island, S. C., and at Havelock and Ellis Lake, N. C., breeding abundantly in both localities. Nests were found at St. James Island June 14, and at Havelock June 17 and 18, with fresh eggs.

55. **Myiarchus crinitus.** CRESTED FLYCATCHER.—One seen by Mr. Abbott at Lake Ellis, June 18.

56. **Myiochanes virens.** WOOD PEWEE.—Common around Havelock and at Lake Ellis, where it breeds. A nest was found at Havelock 60 feet up in a huge yellow pine, on which the bird was sitting on June 16. Other birds were noted by Mr. Abbott at Lake Ellis, June 17 and 20.

57. **Empidonax virescens.** ACADIAN FLYCATCHER.—One recorded by Mr. Abbott as seen along the brushy bank of a canal at Ellis Lake, N. C., on June 18.

58. **Cyanocitta cristata.** BLUE JAY.—Common at Ellis Lake, N. C., where it was seen daily June 16–20, especially in the pine timber surrounding the lake.

59. **Corvus brachyrhynchos.** AMERICAN CROW.—Not uncommon in the heavy pine and sweet gum timber around Ellis Lake. June 19 and 20 several were heard by Mr. Abbott.

60. **Corvus ossifragus.** FISH CROW.—Abundant around Charleston, S. C., and on the neighboring beaches and marshes; at Lake Ellis, and at and near Beaufort, N. C., and on the Hatteras Banks in Pamlico Sound, this bird was seen almost daily during the trip, June 10–28. Especially common at Bulls Bay, S. C., and at Great Lake, N. C. They breed where found, but the young at this date were on the wing.

This bird is very destructive to the various colony nesting birds. In one instance, noted at Great Lake, all the eggs in a Little Blue Heron colony of some sixteen nests had been destroyed. At Bulls Bay many Willet's eggs were found sucked clean, and some eggs of the Least Tern and Wilson's Plover.

61. **Agelaius phoeniceus.** RED-WINGED BLACKBIRD.—Abundant at St. James Island, S. C., and at Ellis Lake, N. C., breeding in both localities. Nests were found almost daily at Ellis Lake, June 16–20, with eggs or young. One pair was seen at Buxton on the Hatteras Banks June 27.

62. **Sturnella magna.** MEADOWLARK.—Not uncommon in the open fields between Havelock and Lake Ellis, N. C. Seen by Mr. Abbott June 18.

63. **Icterus spurius.** ORCHARD ORIOLE.—Common at Ellis Lake, N. C. Particularly noted June 17, when a nest was found, and on June 19 around camp at the lake. One bird seen in an orchard on St. James Island, June 15.

64. **Quiscalus quiscula.** PURPLE GRACKLE.—Noted by Mr. Abbott June 19, at Lake Ellis, N. C.

65. **Megaquiscalus major.** BOAT-TAILED GRACKLE.—Very abundant among the Sea Islands, S. C., where it breeds in large colonies. A colony found on a small island in the salt marsh near Secessionville, S. C., comprised hundreds of pairs. At the time it was visited, June 10 and 11,

many young were on the wing and nearly all the eggs had hatched. Two or three nests were found, with one or two fresh eggs, and one nest with three fresh eggs.

66. *Spizella pusilla*. FIELD SPARROW.—Common at Ellis Lake, N. C., where it was seen daily June 16–20.

67. *Pipilo erythrophthalmus*. TOWHEE; CHEWINK; GROUND ROBIN.—Common among the Sea Islands, S. C., and at Lake Ellis, N. C. Particularly noted June 15 on St. James Island, where a pair with a brood of young were seen. Seen daily among the blackberry patches around camp at Ellis Lake, June 16 to 20.

68. *Cardinalis cardinalis*. CARDINAL.—Common at the Sea Islands, S. C.; at Ellis Lake, and on the Hatteras Banks, N. C. On June 15, a nest with three partially grown young was found on St. James Island. Seen or heard daily at Lake Ellis, June 16–20, and on June 27 at Buxton, N. C.

69. *Passerina cyanea*. INDIGO BUNTING.—Common at Ellis Lake, N. C., where it was seen daily in the blackberry and cat-briar thickets near camp, June 16–20. No nests were found, but Mr. H. H. Brimley tells me that it breeds commonly.

70. *Passerina ciris*. NONPAREIL.—Very common on St. James Island, S. C., where on June 15 three singing males were noted. No nests were found, though Mr. Grimble, who owns the island, tells me that they are common breeders there.

71. *Progne subis*. PURPLE MARTIN.—Abundant in and around Charleston, S. C., and at Newberne and at Lake Ellis, N. C. Seen daily June 10–20, and particularly noted on June 17 at Newberne, where a large colony was nesting; many of the birds had well grown young. A typical bird of the South, seen everywhere; scarcely a house is without its little martin house, and all are occupied by breeding birds.

72. *Riparia riparia*. BANK SWALLOW.—Uncommon and unusual during the summer in the Sea Islands, S. C. Two were seen by Mr. Abbott on St. James Island, June 15.

73. *Lanius ludovicianus*. LOGGERHEAD SHRIKE; BUTCHER BIRD.—Not common among the Sea Islands, S. C. On June 15, a nest was found on St. James Island, containing five eggs.

74. *Vireosylva olivacea*. RED-EYED VIREO.—Not common at Ellis Lake, N. C. One was seen by Mr. Abbott June 17. Several others were heard singing in the gum trees around the camp.

75. *Vireosylva gilva*. WARBLING VIREO.—Fairly common at Lake Ellis, N. C., where it was seen and heard daily in the small groves of sweet gums around the camp, June 16–20.

76. *Vireo griseus*. WHITE-EYED VIREO.—Not common at Ellis Lake, N. C. Only one bird was seen, recorded by Mr. Abbott June 18 at camp.

77. *Mniotilta varia*. BLACK AND WHITE WARBLER.—Not uncommon at Ellis Lake, N. C. While only one bird was seen (recorded by Mr. Bowdish), Mr. Brimley tells me that it breeds sparingly in the woods around the lake.

78. **Protonotaria citrea.** PROTHONOTARY WARBLER.—Fairly common at Great Lake, Jones Co., N. C., frequenting old cypress stumps draped with moss, which afford good feeding and nesting places. On both visits to the lake, June 18 and 20, several were seen, and on June 20 a nest was found in a rotten cypress stump, standing out in the lake; the nest was placed in a deep hollow formed by the breaking off of a limb. The nest contained two fully fledged young, which attempted to leave the nest when disturbed. At the dates seen the male birds were in full song.

79. **Helinaia swainsoni.** SWAINSON'S WARBLER.—Rare around Ellis Lake, N. C. I am able to add a breeding record of this rare warbler from eastern North Carolina. On June 18, a pair of these warblers feeding large young were seen in the low undergrowth of the heavy gum timber between Great Lake and Ellis Lake. These young birds must have been hatched in the near vicinity of the lake, as they were unable to fly. Along the edge of Ellis Lake and along Great Lake, are several large patches of tall canes, making a fine breeding place. An extensive search in these canes would perhaps have revealed more of these warblers, as others were heard singing by Mr. Bowdish and Mr. Abbott.

80. **Compsothlypis americana.** PARULA WARBLER.—Very common around Lake Ellis, N. C., where it was seen daily June 16–20, in the moss-draped gum trees near the camp. No nests were found, but Mr. H. H. Brimley tells me it is an abundant breeder.

81. **Dendroica dominica.** YELLOW-THROATED WARBLER.—Very common in the pine woods at Lake Ellis, N. C., where it was seen daily June 16–20. On June 16 a pair with a brood of young were seen by Mr. Abbott. They are early breeders, and no nests were found. One male was taken June 19.

82. **Dendroica vigosii.** PINE WARBLER.—Uncommon at Ellis Lake, N. C. Only one bird was seen, June 17, near camp.

83. **Dendroica discolor.** PRAIRIE WARBLER.—Seen only in the oak scrub near Beaufort, N. C., where on June 23 a female was seen feeding a full grown young one. Mr. H. H. Brimley states that they are common in the locality.

84. **Seiurus auropallidus.** OVENBIRD.—Uncommon at Lake Ellis. A bird was seen on the road to Havelock June 16, singing.

85. **Geothlypis trichas.** MARYLAND YELLOWTHROAT.—Common among the Sea Islands and on Raccoon Key, Bulls Bay, S. C., where it was seen June 12–15. Common at Havelock and Lake Ellis, being noted June 18.

86. **Wilsonia mitrata.** HOODED WARBLER.—Apparently not common in eastern North Carolina, at least in the localities visited by us. At Ellis Lake one nest was found June 20, containing three eggs ready to hatch. A male of this species was seen in a wet place in the scrub oak near Beaufort, N. C., but no nests were found there.

87. **Mimus polyglottos.** MOCKINGBIRD.—Very common around Charleston, S. C., on the Sea Islands, at Beaufort, and at Lake Ellis. Nests were found June 15, with three and four eggs; incubation advanced.

88. **Dumetella carolinensis.** CATBIRD.—Common at Lake Ellis, N. C. Seen daily June 16 to 20, on which latter date a nest and eggs was found by Mr. Abbott. Seen June 27 at Buxton, on the Hatteras Banks.

89. **Toxostoma rufum.** BROWN THRASHER.—Common at St. James Island, S. C., and at Ellis Lake, N. C., being seen in the thickets near camp June 18 and 19. A newly built nest was found on St. James Island June 15, which had not been laid in.

90. **Thryothorus ludovicianus.** CAROLINA WREN.—Common in suitable localities in the Sea Islands and at Lake Ellis, N. C., breeding in both places. Birds were seen June 15 on St. James Island, and daily June 16–20 around our camp at Lake Ellis. Here a freshly constructed nest was found June 19.

91. **Telmatodytes palustris.** LONG-BILLED MARSH WREN.—A marsh wren was very common in the marshes around Bulls Bay, S. C., and the rookeries on Secessionville and St. James Island. Seen and heard June 10, 11 and 15. None was collected, and the form is doubtful. No nests were found and no young seen.

92. **Sitta carolinensis.** WHITE-BREASTED NUTHATCH.—Reported as a common breeding bird around Lake Ellis, N. C., by Mr. H. H. Brimley. Only one was seen during our visit, being recorded by Mr. Abbott on June 18 near camp.

93. **Sitta pusilla.** BROWN-HEADED NUTHATCH.—Seen only in the oak scrub on the outskirts of Beaufort, N. C. Here one was seen June 23 by Messrs. Abbott and Bowdish, feeding on a dead pine stump.

94. **Bæolophus bicolor.** TUFTED TITMOUSE.—One was seen by Mr. Abbott in the woods around Lake Ellis, N. C., June 18. Several others were heard calling in the low wet timber between Lake Ellis and Great Lake on June 18 and 20. No nests or young were found or seen.

95. **Penthestes carolinensis.** CAROLINA CHICKADEE.—Seen June 18 and subsequently, by Mr. Abbott, at and around Ellis Lake, N. C. Not common.

96. **Hylocichla mustelina.** WOOD THRUSH.—“Common and breeds at both Great Lake and Ellis Lake, N. C.” (Brimley). One seen and several others heard singing in the dark, heavy timber around Great Lake, June 18 and 20.

97. **Sialia sialis.** BLUEBIRD.—Abundant and breeds at Ellis Lake, N. C. (Brimley). One was seen June 18 by Mr. Abbott near our camp at the lake.

98. **Colinus virginianus.** QUAIL; BOBWHITE.—Common on St. James Island, S. C., where a brood of young was found on June 15 in a grass-grown orchard near the plantation house. Common and breeds at and around Havelock and Ellis Lake, N. C. Seen and heard daily June 16–20.

99. **Passer domesticus.** ENGLISH SPARROW.—Seen on St. James Island, S. C., on June 15, around the plantation house. Not seen at Havelock or Ellis Lake, N. C., which appear to be among the few places it has not yet reached.

RESURRECTION OF THE RED-LEGGED BLACK DUCK.

BY WILLIAM BREWSTER.

As Dr. Dwight saw fit to remove the button from his foil before attacking the Red-legged Black Duck and me, its devoted champion, in 'The Auk' for October, 1909, I feel free to defend both the bird and myself with a similarly naked weapon. If by so doing I am fortunate enough to prick my formidable adversary here and there between the joints of his coat of mail he will remember that "faithful are the wounds of a friend" and perhaps will value them accordingly. He has indulged in no little keen but perfectly good-natured fun and satire at my expense, and at that of some of my ornithological beliefs. I shall endeavor to repay him, as best I may, in his own coin, with perhaps some accrued interest added. But first I would have it distinctly understood, both by him and by every one else, that nothing in what I am about to say is intended to express, or even to imply, the least doubt of the sincerity of any of his statements or the slightest disrespect for his scientific opinions.

The article just referred to is entitled "The Singular Case of the Black Duck of North America." This is dealt with by Dr. Dwight in a style so terse and masterful as to recall Julius Cæsar's laconic but all-embracing message, *veni, vidi, vici*. The matter is finally disposed of in the following decisive and uncompromising terms:—

"The evidence shows that all young birds, both in Canada and along the Atlantic Coast of the United States, have brownish legs, while breeding adults from the same localities have red ones. Under these circumstances the 'Red-legged Black Duck' as a subspecies does not appear to have a leg left to stand on—not even a red one. . . . Now at last after much expenditure of energy the Black Duck (*Anas rubripes*) remains an undivided species ranging over eastern North America."

That the "expenditure of energy" here mentioned has been largely on my part and not at all on that of the Black Duck is indicated by a preceding passage in which reference is made to two of my articles. Dr. Dwight advises his readers to consult them but does not himself directly discuss any of the facts and evidence they

contain. Apparently he thought that this would be a needless waste of more "energy," feeling assured, no doubt, that the weight of his own evidence and opinion would be considered sufficient to dispose of mine. Although betraying no uncertainty on this point he is evidently undecided as to whether I should be graciously pardoned or severely rebuked, for having promulgated ornithological heresy. At first he inclines towards the former course, pointing out that up to the time when his own article appeared some facts had "been missing and others misinterpreted." In another connection he pays me a graceful if qualified compliment by asking: "If an ornithologist of Mr. Brewster's ability can go astray in his conclusions what may not the rest of us do?" In still another he is generous enough to concede to "how easy it was to take the wrong path." But in the end a stern sense of duty prevails over consideration of mercy and friendship, prompting him to say unflinchingly that "the episode should be a warning object lesson for all describers to take to heart." Thus, like some poor crow, shot and hung up in a cornfield to keep others of his wanton tribe from molesting the precious grain, am I singled out and conspicuously branded to serve as a wholesome example to the ever increasing horde of reckless describers. If this fate seems somewhat hard, however well-deserved, I may at least console myself by the reflection that the remainder of my life is in a way provided for and not likely to be passed wholly in vain.

But is Dr. Dwight really justified in claiming so confidently that he has proved his contention and disproved mine? Would it not have been wiser, and also more nearly in accord with accepted usage, had he contented himself with presenting his evidence and formulating his conclusions without assuming the right to decide the case irrevocably and to publicly reprimand me, however temperately and considerately, for having taken a view of it differing from his own? Statements as positive and unqualified as some that he has made should certainly be backed by evidence sufficiently strong and convincing to amount to absolute and complete proof; otherwise they are not conclusive but, to a greater or less degree — according to the value and definiteness of the evidence — expression of mere personal opinion.

After citing the characters which I had ascribed to the Red-legged

Black Duck — giving them, however, in his own terms and in nearly inverse order, and omitting altogether one which I had placed almost at the head of the list and to which I continue to attach much importance — Dr. Dwight presents his own evidence with which I will now proceed to deal as briefly as possible. In the first place he says that by skinning and dissecting “fully fifty specimens representing many localities, north and south, besides examining dozens of others shot by friends or found hanging in the markets” he has satisfied himself that the differences which I have considered of subspecific significance “are exactly the ones that distinguish old birds from young whether they occur in the United States or in Canada.” “A series selected from many fresh specimens sent me [him] from Long Island, New York, shows that the Black Duck, like many of the other ducks, slowly passes from the juvenal into the first winter plumage, a change in the color of the feet and bill taking place at the same time. The feet of grown young birds, at first olive brown, become gradually reddened, and finally in the spring they are of nearly as bright a red as that of the adults, while the dusky bill brightens to greenish and then to yellow-green or yellow. . . . Once the adult colors of the soft parts are attained they are never lost,” the bill of the adult being “at all seasons of the year a bright greenish yellow and the feet a coral red, these colors dulling only a trifle after the breeding season.” While some of the young resemble adults, in respect to the color of the feet and bill, “as early as January” others “are still dull in April,” and “a very few laggards in vitality seem to remain immature during their first year.” Immediately following these positive statements and intended, apparently, to show on precisely what grounds they were based — since no other evidence is mentioned — is the assertion that “The bones, the trachea and larynx and the sexual organs proclaim approximately the age of specimens carefully examined.” This is quite true in regard to young birds not more than five or six months from the nest; but that it is equally true with respect to those which have nearly or quite completed the first year of their existence I am not at present prepared to believe, although my personal experience in comparing the bones, sexual organs and other internal parts of birds of many different kinds has perhaps been quite as extensive as that of Dr. Dwight. The matter has always interested me, and

during the thirty or more years when I was actively engaged in collecting birds I lost no opportunity of ascertaining by dissection, whenever possible, the approximate ages of my specimens. With those taken in summer and autumn there was seldom any trouble but by midwinter I found it difficult, and by early spring practically impossible, to decide with certainty as to whether a bird was more or less than one year old. I was accustomed to use a strong lens (but never, I will confess, a microscope), and to give attention to every detail of structure which I found available as a test of age. Hence my skepticism with regard to Dr. Dwight's confident claim. Nor has this, moreover, received the positive endorsement of any one whom I have consulted about it. Mr. H. W. Henshaw has assured me that his experience in determining the ages of birds by dissection has been closely similar to my own. Dr. C. Hart Merriam writes me that he does "not know any way by which the age of a duck killed in winter may be positively determined." Dr. Leonhard Stejneger that he is "not in a position to either deny or affirm Dr. Dwight's assertion." Mr. F. A. Lucas that he is "unable to say whether or not it would be possible to speak positively as to" the ages of ducks taken in winter "after an examination of the bones," although he has found that "in many of our small birds the back of the skull does not ossify so rapidly as the rest of it and in most cases one can usually tell whether a bird is a year old or more." Some of these statements are accompanied by others, equally qualified or non-committal, to the effect that thorough cleaning of an entire skeleton, microscopic examination of some of the parts of the bony structure, or minute examination of the generative organs and their tissue, might reveal characters by which a bird less than a year old could be identified as such. Although chiefly negative in character this testimony establishes one interesting and rather significant fact, viz., that some of the most eminent and experienced ornithologists in this country are still in ignorance or doubt about a matter to which they must have given more or less attention and concerning which Dr. Dwight lays claim to definite and exact knowledge that has escaped their ken. If his age tests be really trustworthy he is to be credited with exceptional acumen for discovering them; but if, on the other hand, they should prove to be unreliable he will have shown himself oblivious to elements of

uncertainty which should not have been overlooked or ignored. Thus he would seem to have placed himself in a position which makes it desirable if not imperative for him to describe fully and clearly the precise methods of dissection which he is accustomed to follow and the resulting proofs of age and immaturity on which he so implicitly relies. When he has done this it will be easier to judge whether his interpretation of the color variations in Black Ducks is or is not literally correct.

It is considered legitimate, I believe, to turn the guns of an opponent against his own fortifications provided one can make such use of them. If, then, I may be permitted to restrict Dr. Dwight's account of the progressive color changes in the bill, legs and feet of Black Ducks to the form *rubripes* it will be of direct service to me. For if, as I am quite ready to believe — having no grounds for maintaining the contrary — the legs and feet of young *rubripes* are not much more strongly reddish in autumn and early winter than are those of young *tristis*, and if the former bird does not acquire the full coloring of these parts until he is nearly or quite one year old, it is easy to account for the undeniable large percentage of autumnal and winter specimens which seem to be intergrades between these races by assuming that very many of them are immature representatives of *rubripes*. This, of course, is in the nature of a tentative and possibly untenable proposition. Not so, however, with the moral which I propose to draw from another of Dr. Dwight's statements already quoted and expressed in the following words: "Once the adult colors of the soft parts are attained they are never lost." This assurance, coming from one who speaks with such confidence and authority, is peculiarly welcome. For it encourages me to believe that a doubt, which I have hitherto entertained, may be unfounded and a claim, on which I have hesitated to insist, justified. The doubt has been as to whether fully mature Black Ducks, showing bright coral red legs and feet in late autumn, winter and early spring, may not afterwards have these parts dull colored in late summer and early autumn — the seasons of "eclipse" plumage with so many of the Anatinae. The claim — directly affected, it will be perceived; by the doubt — is that if no such retrogressive change ever takes place the apparently undisputed fact that Black Ducks with conspicuously red legs are wholly absent

from New England during the earlier part of the shooting season in autumn, and not found in any numbers much before the middle of October, affords the strongest kind of presumptive evidence that *rubripes* is a good subspecies. The very earliest date given by Dr. Townsend for its autumnal appearance in Essex County, Massachusetts, is September 21. It was represented by only seven specimens among the two hundred and sixty birds sent to Faneuil Hall Market in Boston from this region between September 21 and October 3, 1904, and examined for Dr. Townsend by that excellent authority on such matters, Mr. John H. Hardy, Jr. Of the unstated but presumably considerable number of specimens received between September 1 and 21 of that year Mr. Hardy referred *all* to "the smaller form" (*i. e., tristis*). Equally significant and convincing is the testimony relating to this point furnished by Dr. J. C. Phillips, who has a shooting stand at Wenham Lake, in Essex County, where he has given close attention to the migrations of water fowl for a number of years. He writes me as follows (under date of March 24, 1910) in response to my enquiry as to when the Red-legged Ducks appear there in autumn: —

"I have been through all my records for Wenham and find the following dates: —

September 29, 1904.	One Red-leg Duck; weighs 2 lbs. 9 oz.
October 3, 1907.	" " " " " 3 "
" 9, 1906.	" " " " " "

These are very early dates or they would not have been noted. . . . The large, heavy-feathered ducks [*i. e., rubripes*] are not common before October 20." He adds: "The more I ponder on the subject, the more I become satisfied that there are two types of ducks, but I don't think that the red legs are the whole story.¹ While at Currituck last Christmas, I was very much struck by the pre-

¹ Although I continue to believe that the coloring of the legs and feet is conspicuously red in typical examples of *rubripes* and essentially brown or brownish in those of the bird I have called *tristis* I should not be greatly surprised to find that this character is more or less inconstant and unreliable. Even should it prove quite worthless there would remain the obvious differences in size and plumage to which I called attention in the original description of *rubripes*. Dr. Phillips appears to regard them as racial, not age, differences and Col. John E. Thayer assures me that he is of the same opinion. As Dr. Dwight said little or nothing about them in his paper I do not feel called upon to restate or to rediscuss them in the present connection.

ponderance, in our bags, of very large 'winter' ducks. I weighed a large number and many went to 6 lbs. to the pair. I shot numbers [of Black Ducks] in this same region twelve years ago and then we were always surprised to see any of these big ducks. . . . Gunners have spoken to me of the same thing, that is, a change in the type of Black Duck during the last few years at Currituck. . . . At the same time, up here in Wenham, we don't get the September flight of small ducks [*i. e., tristis*] that we used to get along from 1900 to 1905, and yet there are full as many late November and December Black Ducks [*i. e., rubripes*] around the ponds. Can it be that the big duck is taking the place of the smaller one, he being perhaps a shyer bird with more distant breeding grounds, and that the small duck has suffered more during the general decrease in water-fowl."

At Lake Umbagog I have never met with *rubripes* at any date earlier than September 27 (1889), although during the twenty or more years when I was accustomed to spend the greater part of every autumn there I must have examined fully two hundred freshly killed Black Ducks shot in September, to say nothing of the thousands of living birds seen at close range under conditions which enabled me to make sure of the coloring of their legs and feet. Of the specimens actually taken very many were shown by dissection to be more than one year old. That no one of them had passed the maximum age when, according to Dr. Dwight, *all* Black Ducks assume the bright red coloring of the legs and feet, never afterwards to part with it, is obviously improbable if not, as I believe, simply inconceivable.

Another fact of some apparent significance is the tendency shown by Black Ducks having red legs to keep together; either wholly by themselves, in small flocks, as I have repeatedly known to happen in late autumn at Lake Umbagog, or in pairs or clustering groups, when mingling with brown-legged birds, as I have witnessed in early spring in Massachusetts. An interesting instance of the latter kind came under my notice in March, 1909. On the 16th of the month Mr. Purdie and I found eighty-four Black Ducks assembled at Fresh Pond where all but a few, swimming in open water, were standing on a great raft of floating ice, basking in the morning sun. With the help of its clear rays and of a strong glass I was able to satisfy myself that there were only fifteen representatives of *rubripes*

among the total number on the ice — a surprisingly small proportion of “adults” to “immature” birds if Dr. Dwight’s opinions are correct. All the birds satisfactorily seen had legs either bright red — almost as deep and pure as that of red sealing wax — or dull brownish, there being no indication of intergradation in this respect. Four red-legged birds stood together in one place; in another there were five with a single brown-legged bird; in still another four, represented by two mated pairs separated by a space of only a few yards. The remaining two were far removed from the others and among brown-legged birds. Although most of these ducks were unquestionably wild ones, about to migrate to breeding grounds lying further north, a few may have strayed from some of the park ponds in Boston or Brookline where miscellaneous collections of semi-domesticated water-fowl are kept. I mention this slight uncertainty partly to guard myself against the possible accusation of inconsistency which might be suggested by a criticism that I shall make presently of certain observations of park water-fowl by Dr. Dwight. It can scarcely fail to be recognized, however, that the two cases are not parallel, or to be admitted that even if a few of the birds seen at Fresh Pond were not really wild, the fact has little or no obvious bearing on the use I have made of the evidence they furnished. Where I refer to “pairs” I mean that each of these consisted of a drake and a duck, not of two birds of unknown sex. It is perfectly easy — at least in spring — to distinguish male from female Black Ducks when mated birds are standing together on ice or land and not too far off; for the males are decidedly larger than the females and also appreciably different in form and carriage.

Although Dr. Dwight is given to insisting that no one unprovided with full series of birds taken during the breeding season, in their summer haunts, should presume to pass upon questions in which the value or significance of differences of color or markings is involved, his paper on Black Ducks lacks satisfactory assurance that, with the exception of a single specimen, any of the birds he mentions were obtained in localities where they had certainly settled to breed. He apparently admits, and at the same time defends, this violation of his favorite rule by pointing out that “There are many difficulties to be overcome in obtaining breeding specimens which of course

would settle the question at once. The males become exceedingly shy and difficult to find in the breeding season and nobody wants to slaughter brooding females even if nests be found." He goes on to say, however, that "before spring shooting was abolished some years ago on Long Island, New York, a number of freshly killed birds were sent me that scarcely needed dissection to prove them breeding birds. They were shot at various dates in April and all had red legs." To those unfamiliar with certain known facts of migration the evidence furnished by the two sentences last quoted may seem important, but that an ornithologist of Dr. Dwight's knowledge and experience can attach any special value or significance to it is indeed surprising. He must know, of course, that in April — or May, for that matter — thousands of birds whose *individual* summer homes lie further to the northward may be found lingering in the New England and the Middle States at dates when others of the same or of closely allied species are sitting on their nests and eggs in the same neighborhood. Indeed it is unsafe to assume that the mere presence of migratory birds of any kind at localities not near the extreme northern limits of their summer ranges, affords any proof that they are breeding in such localities unless they occur there within that limited period in early summer when the waves of migration are wholly at rest. In the case of ducks, moreover, physical evidences of "breeding condition," such as Dr. Dwight may be assumed to refer to in what he says of his Long Island specimens, have apparently little or no real significance of the kind he gives us to understand. For although Goldeneyes and Goosanders do not lay their eggs in northern New England before late April or early May and are not known or suspected to ever breed anywhere in Massachusetts, they have been seen copulating in March near Boston and in the waters about Cape Cod.

Perhaps, after all, Dr. Dwight is better informed about some of these matters than the passages just quoted would seem to imply, for he follows them by the admission that "it was not until the present year that I secured the last link required in my chain of evidence." This, it appears, was furnished by a freshly-killed bird shot "on Long Island, June 11, 1909." It had "the red legs and other characters supposed to belong to the northern 'form' alone" and "evidently was recently mated." Hence Dr. Dwight insists that

"it should set at rest any lurking belief in the subspecific distinctness of *rubripes*." He calls "attention to the fallibility of trained gunners when a question of scientific importance is at stake," adding: "The very man who shot my June bird had previously assured me that the summer birds of Long Island did not have red legs." Dr. Dwight then goes on to say that he has "noticed, without a glass, that the wild birds breeding about the Central Park lakes in New York City have red legs, but such evidence, derived from semi-domesticated water-fowl, is not convincing in itself alone." Considered in the close connection in which it occurs with the passage expressing disparagement of the opinions and methods of observation of "trained gunners" this last statement is rather amusing. That a trained ornithologist, dealing with a question of scientific importance, should have made it without perceiving that so far from strengthening, it positively tends to discredit, some of his other evidence and conclusions, is not a little surprising. For, as almost everyone knows, the water-fowl now kept in such numbers and variety in or near New York, Boston, and various other large cities are, for the most part, of obscure if not unknown origin. Purchased from Sportsman's Shows or from dealers in remote parts of North America and the Old World they intermingle and probably also interbreed, producing offspring of even more uncertain antecedents than their own. Some of them are pinioned but many are not thus handicapped, having free use of their wings and unrestrained liberty, wander more or less widely, returning to the park ponds every now and then or deserting them altogether, as circumstances or inclination dictate. They often join, or are joined by, wild migrants of the same or of allied species and even occasionally mate with them it is thought — although not as yet definitely ascertained. In such collections of living water-fowl the Red-legged Black Ducks are often rather numerous represented. Their presence in them has, of course, no more significance than has that of the Wood Ducks kept in such profusion in ornamental ponds in various cities in Europe. In view of all these facts why is it not possible — or rather probable — that the "June bird" shot on Long Island came originally from some of the lakes in Central Park or the Bronx? It may even have been one of the very ducks — "wild" or "semi-domesticated," which are we to

call them? — which Dr. Dwight viewed with such satisfaction there when the momentous question as whether *rubripes* has or has not “a leg left to stand on” was perhaps still agitating his mind. Should such a suggestion be brought to the attention of the slayer of the “June bird” it would be likely to strengthen his original belief that the wild Black Ducks which occur on Long Island in summer do not have red legs. For men of his sort are apt to be tenacious of opinions based on personal experience — thereby differing from trained ornithologists.

Nothing that I have said in the course of the present article or in any previous connection should be taken to imply that I am or ever have been, absolutely assured that the Red-legged Black Duck is a good subspecies. All I claim is that the bulk of the evidence seems to point that way and more decidedly now than it did before Dr. Dwight’s article was written. As I have already explained, some of his most confident statements have given me unexpected comfort and support, although intended by him to serve a directly opposite purpose. It may be, or course, that I have made incorrect use of them and also, as he thinks, of the results of my own study and observation. But that remains to be shown, for there is obvious need of additional evidence more definite and convincing than any thus far produced before the question can be finally settled. If, perchance, it be decided against Dr. Dwight, I promise not to insist on his serving as a warning to any one. Should the spirit of charity and forgiveness, which all good Christians are supposed to cultivate and to act upon at every fitting opportunity, be expected to go further than this?

HENSLOW'S SPARROW AS AN OHIO BIRD.

BY W. F. HENNINGER.

Plate XVIII.

AUDUBON took this sparrow at Newport, Kentucky, opposite Cincinnati, and states: "It is accidental in Ohio." It was not taken in Ohio for years and Audubon's statement was considered an error. But time has shown him to have been correct in this statement as in many other instances, where others failed and the sharp-eyed master succeeded. Dr. Wheaton, in 1882, included this bird in his Ohio List on this statement of Audubon. Neither he nor Oliver Davie knew anything of this species as an Ohio bird. Their opinion that it would be found in southern and western Ohio as a breeder has never been proved. In the meantime Jones and Dawson were working up the northern part of the State and took a specimen in 1894 near Oberlin in Lorain County, and Dawson in his book 'Birds of Ohio,' follows it up with the remark: "they undoubtedly bred there." On September 25, 1906, I met two migrating Henslow's Sparrows (Wilson Bull., Dec., 1906, p. 136) near Tiffin, Seneca County, Ohio. In 1907 and 1908, Mr. E. W. Vickers of Ellsworth Station and Geo. L. Fordyce of Youngstown recorded an invasion of this sparrow in Mahoning County, Ohio (Wilson Bull., Sept., 1908, pp. 150-152).

To these records I now add two more. On October 8, 1894, I took what I thought to be a specimen of this bird at South Webster, Scioto County, migrating with other sparrows, and as I knew the species in my home State (Missouri) I was about sure of the identification. Unfortunately I lost the specimen and consequently never reported anything about it as my hypothetical list of Southern Ohio Birds (Wilson Bull., Sept., 1902) was already too large. In 1904, I took a nest and 4 eggs of this species near Tiffin, Seneca County, and have kept this note back since then, partly because I wanted more evidence and a still better confirmation of my record before rushing into print, and partly because I had packed the eggs away where I could not conveniently get at them. Recently when



HENSLow's SPARROW. TIFFIN, O., JUNE 3, 1904.

GRASSHOPPER SPARROW. TIFFIN, O., JUNE 3, 1984.

going over my collection I concluded that the time had come to make this record public.

For the benefit of other ornithologists I will relate the circumstances in detail. One of my young parishioners at Tiffin, a farmer, told me they were going to mow a rather swampy meadow of clover on June 3 and said: "Those birds you showed me on May 28 on that 7½ acre patch are nesting there, I believe." So I took my camera outfit and tramped along the Big Four R. R. tracks three miles northeast of Tiffin, jumped across a big ditch and slowly worked my way over several swampy meadows to the above mentioned clover field. It was very wet and every ten feet a furrow about six inches deep had been run through it lengthwise. Bobolinks were all around us and a beautiful nest of the Meadowlark with 6 eggs was photographed at once. There were no Swamp, Song nor Field Sparrows near, but there were Grasshopper Sparrows, and we found two of their nests of five and four eggs. Almost in the center of the meadow we flushed a sparrow from her nest of four eggs, but I could not get a satisfactory view of it as it was running through the grass, and unfortunately I had no gun with me. We heard the faint note *tse seēp* (thus it sounds to my ear) several times, but try as we could we never again caught or flushed the bird on the nest, although I was well nigh positive the species was Henslow's Sparrow. The nest was sunk into the ground at the base of a grass tussock near one of the furrows and arched over. In taking the picture I did not use the tripod but simply placed the camera on a higher grass tussock nearby. The day wore on, but that sparrow was not to be caught; the next day I had to leave town, and when the twilight was falling, I collected the nest and eggs and it has rested in my collection since that day.

Recently I wrote a letter to Mr. J. Claire Wood of Detroit, Mich., a fellow member of the Wilson Club, who had taken the eggs and nest of this bird in Michigan in 1905 (*Auk*, Vol. XXII, p. 416), and he was so kind as to send me his set of four (now three) eggs of this bird for comparison. His set and mine agree perfectly in color pattern — a wreath of reddish and lavender specks at the dull end with numerous small reddish specks over the body of the egg on a greenish ground color. The greenish tint of the ground color is more pronounced in his eggs than in mine, while mine are more

uniform in their coloration, all agreeing with one of his eggs. His nest agreed with mine also in location. His set (3 eggs) measures 18.54×13.46 ; 18.80×13.46 ; 18.54×13.72 mm. My set (4 eggs) measures 18.54×13.75 ; 18.25×13.75 ; 18×13.50 ; 18.75×14 . They look like a large edition of Field Sparrow eggs, but bear no resemblance to any other sparrow eggs in Ohio. In form they are oblong oval, the Grasshopper Sparrow's eggs are ovate squatty in shape with a polished white ground color.

Thus it will be seen that even though I did not capture the bird, there is no doubt whatever that I found *the first authentic nest and eggs of Henslow's Sparrow in Ohio*, and that Jones and Dawson were correct in their view that Henslow's Sparrow is a rare and irregular breeder in Ohio. To show the difference I have also added a photograph of the Grasshopper Sparrow's nest and eggs. Both pictures are simply loaned to 'The Auk,' and republication in any other work will be strictly dealt with according to law. I am under great obligations to Mr. J. Claire Wood for his kindness and help. And finally I have no doubt that Henslow's Sparrow will be found in many other places in Ohio by careful and competent observers.

GENERAL NOTES.

Black Brant (*Branta nigricans*) in Massachusetts.—As this bird is one of the very rarest in Massachusetts, and also is but a rare straggler on any part of the Atlantic coast, every instance of its being taken should be placed on record. I heard of one of these Brant being killed some years ago at Chatham, and upon further investigation found the bird in the collection of Mr. W. A. Carey of Boston. It was shot on April 15, 1902, and was one of a flock of seven Brant, and the only one killed. That spring there was an unusually small number of Brant at Chatham, and the party at the Monomoy Brant Club, the week that Mr. Carey was there, killed but very few birds. Curiously enough this was the only one that he himself shot. I supposed that it had been reported long ago and was much surprised to find that it had been overlooked, though a number of people knew of its existence. This is only the second record for the State, the other being one reported by C. B. Cory as killed in the spring of 1883, also at

Chatham.¹ There seem to be but very few records for the Atlantic coast. Two were shot in New Jersey on April 5, 1877²; one was shot by Augustus Dexter on Oneida Lake, N. Y., on October 30, 1891,³ and only three have ever been reported from Long Island, all from Great South Bay. One was taken in 1840,⁴ one in 1889,⁵ and one in 1908.⁶ As far as is known these are the only three from that locality. This then makes but seven records for the Atlantic coast, with a total of but eight birds.⁷—S. PRESCOTT FAY, *Boston, Mass.*

Notes on *Chen caerulescens*, *Chen rossi*, and other Waterfowl in Louisiana.—While Audubon's statement that "The Snow Goose in the grey state of its plumage is very abundant in winter, about the mouths of the Mississippi, as well as on all the muddy and grassy shores of the bays and inlets of the Gulf of Mexico as far as the Texas"⁸ undoubtedly refers to *Chen caerulescens*, and, notwithstanding the fact of the occurrence of the species in large numbers in that region has been reiterated by Beyer⁹ and McIlhenny,¹⁰ the impression is general that the Blue Goose is a rare bird.

Professor Cooke speaks of it as "this rather rare goose,"¹¹ and Sanford says: "In its full spring plumage the Blue Goose is seldom taken in the . . . United States, and it is perhaps the rarest of our geese."¹² Moreover, these statements are typical of allusions to the species in most ornithological writings.

It was with pleasure therefore that the writer, while on a trip in the interests of the Biological Survey, during the past winter, found the Blue Geese abundant in southern Louisiana, probably just as numerous as in the days of Audubon. The localities visited were the delta of the Mississippi River, specifically, Octave, Main, 27, and other passes entered through Cubit Gap, and Belle Isle and the surrounding region to the west of Vermillion Bay. Not only were Blue Geese found in flocks of thousands, but it was learned also that on account of their great numbers, they do much damage to pastures, especially in the vicinity of Belle Isle and Chenjereau-Tigre.

¹ Cory, C. B., *Auk*, Vol. I, 1884, p. 96.

² Scott, W. E. D., *Bull. Nutt. Ornith. Club*, Vol. IV, 1879, p. 226.

³ Bagg, Egbert, *Auk*, Vol. XI, 1894, p. 163.

⁴ Dutcher, William, *ibid.*, Vol. X, 1893, p. 271.

⁵ Dutcher, William, *ibid.*, Vol. X, 1893, p. 266.

⁶ Herrick, N. L., *ibid.*, Vol. XXV, 1908, p. 473.

⁷ [To these should be added the type specimen of the species, taken at Great Egg Harbor, New Jersey, in January, 1846 (*cf.* Lawrence, G. N., *Ann. Lyc. N. H. N. Y.*, IV, 1846, p. 171, pl. xii), and two others taken later the same winter. There are also several later records for New Jersey in addition to those given above (*cf.* Stone, *Birds of New Jersey*, 1908 (1909), p. 96).—Ed.]

⁸ *Orn. Biogr.*, V, 1838, p. 562.

⁹ *Proc. Louisiana Soc. Nat.*, 1900, p. 90.

¹⁰ *Auk*, XIV, 1897, p. 287.

¹¹ *Bull.* 26, Biological Survey, 1906, p. 68.

¹² *The Waterfowl Family*, 1903, p. 227.

In the Mississippi delta the Blue Geese rest by day on mud flats bordering the Gulf. At the time of my visit (January 29 to February 4, 1910) these were entirely destitute of vegetation, a condition to which the geese had reduced them by their voracious feeding. Every summer these flats are covered by a dense growth of "cut grass" (the local name for *Zizaniopsis miliacea*), "goose grass" (*Scirpus robustus*), "oyster grass" (*Spartina glabra*), "Johnson grass" (*Panicum repens*), and cat-tails or "flag-grass" (*Typha angustifolia*), and every fall are denuded by the Blue Geese or Brant as they are called in the delta. The birds feed principally upon the roots of these plants but the tops of all are eaten at times, if not regularly. Each goose works out a rounded hole in the mud, devouring all of the roots discovered, and these holes are enlarged until they almost touch before the birds move on. They maintain themselves in irregular rows while feeding, much after the manner of certain caterpillars on leaves, and make almost as clean a sweep of the area passed over.

In the Belle Isle region the method of feeding is the same except that the birds feed by day, but the places frequented are what are locally known as 'burns,' that is, areas of marsh burned over so that new green food will sooner be available for the cattle. These pastures, for the most part, are barely above water level, so that the holes dug by the geese immediately fill with water. Continued feeding in one area produces shallow, grass-tufted ponds, where formerly there was unbroken pasture. Some of these ponds are resorted to for roosting places, in which case the action of the birds' feet further deepens them, and veritable lakes are produced, which the building-up influence of vegetation cannot obliterate for generations, and never, in fact, while the geese continue to use them.

The numbers of the Blue Geese are so great that these effects are not local but general. At Chenjere-au-Tigre, one proprietor formerly hired from two to four men at a dollar a day, furnishing them board, horses, guns and ammunition, and keeping them on the move constantly in the daytime to drive the geese away. The attempt was unsuccessful, however, and fully 2000 acres of pasture were abandoned. Other proprietors had similar experience and suffered loss of the use of hundreds of acres.

Besides Blue Geese, Canada Geese and Snow Geese are numerous. One goose among about every 25 Blue Geese is white. These white birds do not flock together but are always scattered among the blue and are regarded by the hunters as belonging to that species. A specimen collected in the delta of the Mississippi is referable to the lesser western form, *Chen hyperborea*. It should be recorded also that a specimen of *Chen rossii* was taken February 23, 1910, on the shore of Little Vermillion Bay, La., near the mouth of the Vermillion River. The nearest previous captures were made in northern Chihuahua, Mexico, and in Colorado.

Being so localized in their winter range, it might seem that the Blue Geese are in danger of extermination. But they are so wary and so few hunters molest them that at present there is no appreciable reduction in their numbers by man. The same is true, I feel sure, of the winter colonies of

Snow Geese and Swans on Currituck Sound, North Carolina. So long as conditions remain the same, the birds being very wary, and having little market value there is no incentive to kill them, nothing occurring during their stay in the United States will materially lessen the numbers, nor even interfere with the increase of these fine birds. However, if they should become an object of pursuit, it is equally true that they would diminish very rapidly.

Specimens of *Anas fulvigula maculosa* were obtained at Belle Isle, La., March 2, 1910. A male *Anas tristis* was apparently mated with one of the mottled ducks. Some of the hunters of Louisiana urge an extension of the open season on the plea that the Mottled Ducks leave the State in winter. I may say, however, that all of the evidence of intelligent persons living in the range of the species, confirms what has often been recorded, namely, that the Mottled Duck is resident. They may be absent in winter from localities they frequent even in large numbers in summer, but they remain in the same general region. As one hunter expressed it "they spread out." The bird is not well known among the hunters at large over the State, from the fact that the range is limited to a narrow strip along the coast. They have heard of it, however, under the names of Summer or Mexican French Duck, or Mallard, and as they get no such duck when shooting, jump to the conclusion that it migrates before the hunting season. Hence the clamor to get at it.—W. L. MCATEE, *Biological Survey, Washington, D. C.*

Another King Rail in Massachusetts.—Mr. Richard M. Russell shot a King Rail (*Rallus elegans*) on Sandy Neck, West Barnstable, Mass., on December 30 or 31, 1909. This is I believe the ninth record for the State. The bird was very emaciated when shot, and quite tame. Mr. Russell has deposited the specimen, mounted, in this Museum from which it will be transferred to the Boston Society of Natural History.—R. HEBER HOWE, JR., *Thoreau Museum, Concord, Mass.*

Knot (*Tringa canutus*) Wintering in Massachusetts.—The winter records of our shore birds are so scanty that any new addition should be very welcome, and in this connection I want to record the taking of two Knots at Chatham on Dec. 31, 1909—the very last day of the year. A friend of mine to whom the birds were sent identified them, which he described as being in the immature gray plumage and in as good condition as fat young birds killed in the early fall. A party from Chatham were out after rabbits on Monomoy Island near the flats and marshes which the shore birds frequent in summer, when these two birds flew by. As they were thought to be Black-bellied Plover the corresponding whistle was given, whereupon both birds wheeled about, and as they came nearer they were seen to be Knots. They were shot and both fell on solid ice. As the last week⁷ in December was bitterly cold, in fact the coldest part

of the winter, for the thermometer several times touched zero, it seems strange that these birds should have stayed north, especially as everything was frozen up and the flats and feeding grounds were covered with ice. How they managed to find any sustenance, to say nothing of their being fat, seems a mystery. That same week I was on Martha's Vineyard Island where I found a male Chewink wintering, which I reported in 'The Auk,' Volume XXVII, p. 220.—S. PRESCOTT FAY, *Boston, Mass.*

Breeding of the Long-eared Owl in Philadelphia County, Pa.—It appears almost incredible that any of our larger hawks and owls can exist in such a densely populated locality as Philadelphia, yet, to our surprise and wonder, they somehow manage to subsist, despite the ruthless warfare waged against them by ignorant gunners and farmers, who kill them upon every occasion. In view of these facts it is a mystery to me why our larger Raptores have not long ago been extirpated as breeders in this vicinity, but such seems not to have as yet happened, as their occasional discovery nesting indicates.

The Long-eared Owl (*Asio wilsonianus*) is one of these much maligned species. It now is of decidedly scarce occurrence even as a winter visitant and is a rare breeder. It is so rare in Philadelphia that I have not seen any since December, 1902, and have only several other subsequent records of them from near the city.

Although I have never actually found a nest in Philadelphia I have seen the young, which establishes a record of its breeding. On June 9, 1898, in a big, thick wood at Frankford, I discovered four fledgling Long-eared Owls huddled together about thirty feet up in a scrubby scarlet oak. When disturbed they flew weakly about in a bewildered manner in all directions, and their discovery by the inhabitants of the wood had made them almost distracted. They were evidently raised in one of the many Crow's nests in the wood. A pair of Long-eared Owls was seen in this wood on March 14, 1902, but subsequent search for them and their nest was fruitless, and I have no doubt that the birds were shot.—RICHARD F. MILLER, *Harrowgate, Philadelphia, Pa.*

Northwestern Saw-whet and Snowy Owls in Oregon.—On Nov. 30, 1909, a hunter shot a fine adult female Snowy Owl (*Nyctea nyctea*) at Sheridan, Dougal Co., Oregon. It was perched on a large stump beside the trail in heavy forest. Mr. Frank Baker, a Portland, Oregon, taxidermist, has three Northwestern Saw-whet Owls (*Cryptoglaux acadica scotae*) collected in Douglas County during the summer of 1899. Both these Owls are rare in this part of the State.—STANLEY G. JEWETT, *Portland, Oregon.*

A Hybrid Flicker in Eastern Missouri.—On Feb. 6, 1910, on the bank of the Meramec River, ten miles southwest of St. Louis, I found dead a Flicker, a hybrid of the Northern (*Colaptes auratus lutescens*) and Red-shafted

(*Colaptes cafer collaris*). The three outer primaries on each wing, and the three outer tail feathers were strongly marked with red, the two outer primaries being entirely colored on the under side. The other markings were those of a male Northern Flicker. The bird had apparently been hurt. There is no record of a hybrid Flicker for any except the extreme western portion of Missouri, and it is not mentioned at all in Cory's lately published list of the birds of Illinois and Wisconsin. Dr. Otto Widmann, in his 'Birds of Missouri,' cites several records of typical Red-shafted Flickers in Courtney County, in the extreme western part of the State.—ROGER M. BALDWIN, *St. Louis, Mo.*

The Wintering of Meadowlarks at Pine Point, Maine.—Referring to Mr. Arthur H. Norton's notice¹ of the wintering of Meadowlarks (*Sturnella magna*) at Pine Point, it should be said that I have seen these birds there almost daily throughout the past three winters. Making their home in the thick woods near by, they obtained their food from the marsh. During the winter of 1907-08 a flock of eight stayed in the vicinity of the railroad station, being frequently seen on the adjacent marshes. The next winter the flock was increased to about twelve or fourteen birds. I saw them nearly every day all through the winter. In very cold weather, when the grasses and weeds of the marsh were buried beneath the snow, they would venture up to the railway station and pick up grain which had fallen from the freight cars. That they enjoyed their winter stay at Pine Point seems evident, for the past winter a flock of thirty-five or forty birds spent the cold months with us. In February, when the marsh was deeply covered with snow, I frequently walked out near the river, scraped off snow from small patches of grass and fed the larks with grain — cracked corn, oats and barley. They evidently relished this, for it was eagerly devoured. On warm days in January and February they often alighted on the telegraph wires and sang. One could scarcely realize then that it was midwinter.—FRED. S. WALKER, *Pine Point, Maine.*

Calcarius lapponicus at Monomoy, Mass., in April.—At Monomoy, Mass., on April 10, 1909, I saw at least twelve Lapland Longspurs (*Calcarius lapponicus*), two of which I secured. The birds were apparently feeding on the seeds of the coarse salt grass, which grows on the edge of the marsh near the flats and is partly covered at high tide.

During the three or four previous days, I saw small flocks of Lapland Longspurs at different times, but as I was not at Monomoy after April 10, I do not know how much later the birds remained.—CHAS. R. LAMB, *Cambridge, Mass.*

The Chestnut-collared Longspur in Illinois.—On April 24, 1910, my friend Mr. Gerard Alan Abbott, while investigating bird life on the prairies

¹ Auk, Vol. XXVI, p. 308.

near Orland, a few miles southwest of Chicago, came across about two hundred *Calcarius pictus*. Among them were ten or a dozen *Calcarius ornatus*, a bird of the western plains, heretofore not recorded from Illinois. The birds were not very shy, allowing a near approach, and were positively identified by Mr. Abbott, who is well acquainted with the species in the field, having previously taken specimens in Dakota and Montana.— HENRY K. COALE, *Highland Park, Ill.*

The Type Locality of *Vireo belli*.— Audubon described *Vireo belli* without giving any type locality. The type specimen is now in the United States National Museum, and is labeled "Fort Union (?) Mr. Audubon." This specimen is quoted without the question mark in Baird's 'Birds of North America,' 1858, p. 337; in Baird's 'Review of North American Birds,' 1866, p. 358, as "Fort Union, Dec. 1843"; while in Baird, Brewer and Ridgway's 'North American Birds,' I, 1874, p. 389, the type locality is given as "Missouri River," and the statement is made in the text that this species was first procured "in what is now known as Dakota Territory." The latest manual, Ridgway's 'Birds of North and Middle America,' III, 1904, p. 204, gives the type locality as "Fort Union, Dakota, type in Coll. U. S. Nat. Mus."

There seems to be no foundation in fact, in any of these statements, for giving Fort Union as the type locality. *Vireo belli* was described by Audubon in his 'Birds of America,' octavo edition, 1844, p. 333, and he says, "On the same day that Harris' Finch was procured, Mr. J. G. Bell. . . shot one of the species which I am now about to describe." On page 331 of the same volume, under *Fringilla harrisi*, the statement is made that the "first specimen seen was procured May 4, 1843, a short distance below the Black Snake Hills." Therefore, according to this statement, the type of *Vireo belli* was secured May 4, 1843. From the journal of Audubon, it is known that at this date he was a few miles below St. Joseph, Mo., and under this date he speaks of securing "a new Finch" (Audubon and his Journals, by Maria R. Audubon, I, 1897, p. 470), but he says nothing of any new *Vireo*. Two days later, however, he says: "Bell also shot a small *Vireo*, which is in all probability a new species (to me at least)." This is the *Vireo belli*, and at this date the party was at St. Joseph, Mo. There is thus a discrepancy of two days between the date given in Audubon's journal and that mentioned in the original description of *Vireo belli*. Audubon's journal mentions that another specimen of the Harris Finch was shot on May 6, and it is evidently this specimen that Audubon remembered when he wrote that Harris's Finch and Bell's *Vireo* were taken the same day. The type of *Vireo belli* was therefore taken May 6, 1843, at St. Joseph, Mo.

Audubon makes the explicit statement in the original description of *Vireo belli* that he found it "as far up the Missouri River as Fort Union." This is probably a mistake, as no subsequent observer has noted the species farther north than southern South Dakota.

The label on the type specimen was evidently not written by Audubon himself and whoever wrote it had doubts as to the correctness of the locality.

Old Fort Union is the type locality of several species, but writers and geographers have disagreed as to whether the Fort was in North Dakota or Montana. Mr. E. A. Preble, of the Biological Survey, visited the site a few days ago and finds that the present Montana-Dakota line cuts right through the site of the old fort, but as most of the buildings were on the Dakota side, it seems best to consider that Old Fort Union was in North Dakota.—WELLS W. COOKE, *Biological Survey, Washington, D. C.*

The Redstart in Southern New Jersey in Summer.—The Redstart is a rare summer resident in southern New Jersey, and it is only of late years that it has been commonly observed at this season.

On the Pensauken Creek, as far back as 1894 or 1895, in September, I collected a nest that was undoubtedly of this species. It was found well in a wood on the high bank of the stream, above Parry, on the Burlington County side, and was placed in the crotch of a white oak sapling, about 20 feet from the ground. It differed appreciably in composition from nests of the Yellow Warbler, the only species breeding on the creek whose nests it resembled; but I have never yet found *Dendroica aestiva* nesting in woods. I had the nest several years in my collection and it was almost the exact reproduction of other Redstarts' nests I possessed, which were collected in New York and Pennsylvania.

Nevertheless, the Redstart does breed on the Pensauken Creek, as I saw a pair here on June 14, 1908, in a wood on the Burlington County side of the South Branch, above Fork's Landing, and observed a male in the same wood on June 13, 1909. But on both occasions I failed to find the nest.

At Fish House, Camden County, N. J., one was seen on June 3, 1906, but no search was made for its nest. A Blue-winged Warbler, another rare breeder in southern New Jersey, was observed on the same day at this locality.

It is my belief that the Redstart is increasing in South Jersey in summer, as it appears to be doing in southeastern Pennsylvania.—RICHARD F. MILLER, *Philadelphia, Pa.*

Providential Supply of Food for Birds in a Blizzard.—April 22, 1910, opened bright and warm. Fruit trees were in blossom, flowers everywhere. By night a heavy rain set in, followed by snow and a cold northwest wind. By morning it was mid-winter. Birds and plants were frozen, and there was several inches of snow on the ground.

Half-frozen and bedraggled, the birds huddled under the hedges or in the evergreens for protection from the blizzard. After breakfast I went out to shovel the snow off the walk, and was surprised to see throngs of

birds on the bare places in the road where the snow had been blown away. Upon investigating I found the road literally covered with earth worms, which the birds had discovered and were feasting upon.

There were hundreds of Rusty Blackbirds, Cowbirds, White-throated Sparrows, Hermit Thrushes, Robins, Flickers, Brown Thrushes, Bluebirds and Bronzed Grackles. By noon time the birds had had their fill and not a worm was in sight. All that night the blizzard raged, but the next day it moderated and I believe few if any of the birds perished.— HENRY K. COALE, *Highland Park, Ill.*

The Avocet and Other Shore-birds at Ithaca during the Fall of 1909.— In Eaton's recent exhaustive work, 'Birds of New York,' he states that "The last authentic specimens [of the Avocet] were obtained about 50 years ago on Long Island." In view of this fact and the general paucity of records for this bird in the east, it seems advisable to present a record made at Ithaca, N. Y., last fall. The bird when first seen was flushed amid a mixed flock of Lesser Yellow-legs, Pectoral Sandpipers, Sanderlings and Semipalmated Plover, Sept. 15, 1909. Later in the day it was seen feeding in its characteristic manner a short distance from this same flock but always keeping with them. The following day, Sept. 16, it was collected and is now in the C. U. collection (Ac. No. 5219). It is an adult male in full winter plumage.

In addition to the occurrence of the Avocet, the migration of other shore-birds during the fall was so unusual for this station that a short review of the records may be worthy of note. Normally the possible feeding grounds for these birds is rather scant as the lake shore is grown up to rank vegetation. This year (1909) however, due to the unusually low level of the lake, extensive mud flats and sand beaches were left exposed. Before the hunting season opened, these were teeming with birds and thereafter flocks were continually dropping in, although almost immediately frightened away by gunners. Morning and evening, three or four times a week, these flats at the head of the lake were visited and it is a summary of the records made that follows:

Lobipes lobatus. NORTHERN PHALAROPE.— Two specimens taken Sept. 23 and Sept. 27.

Recurvirostra americana. AVOCET.— A single specimen, Sept. 15 and 16.

Gallinago delicata. WILSON'S SNIPE.— The first individual was seen July 11. It was not again seen until Oct. 1, after which two or three specimens were seen each week until Oct. 20. It was not as common as usual.

Pisobia maculata. PECTORAL SANDPIPER.— First appeared Aug. 2; common until Sept. 16 when they disappeared. Oct. 13 they again became common but departed the same day, only a few remaining until Oct. 20.

Pisobia fuscicollis. WHITE-RUMPED SANDPIPER.— Three individuals were taken Oct. 13, and 5 seen Oct. 16. They were accompanying Pectorals but did not mingle with them.

Pisobia minutilla. LEAST SANDPIPER.—This species was recorded but once, on July 21, when several were seen.

Pelidna alpina sakhalina. RED-BACKED SANDPIPER.—Appeared Sept. 24 and straggled along until Oct. 27, never more than two or three being seen together.

Ereunetes pusillus. SEMIPALMATED SANDPIPER.—First seen July 21; was more or less common until Sept. 16; last seen Sept. 23.

Calidris leucophæa. SANDERLING.—A flock of five on Aug. 18 was the first appearance of this species. Sept. 15 and 16 it was fairly common, and was last seen Sept. 24.

Totanus melanoleucus. GREATER YELLOW-LEGS.—Appeared Oct. 12 and 13 when five were seen. A flock of seven on Oct. 17 is the only other record.

Totanus flavipes. YELLOW-LEGS.—A single individual seen Aug. 1; a flock of seven on Sept. 15 and 16; and five on Sept. 23 are the only records.

Helodromas solitarius. SOLITARY SANDPIPER.—Ordinarily a fairly common visitant, but only one specimen was recorded, Sept. 16.

Actitis macularia. SPOTTED SANDPIPER.—A rather common summer resident; it was last seen Sept. 16.

Squatarola squatarola. BLACK-BELLIED PLOVER.—First seen Sept. 3; a few scattering individuals then seen until Sept. 25.

Charadrius dominicus. GOLDEN PLOVER.—One individual taken Oct. 27 constitutes the only record for this species.

Oxyechus vociferus. KILLDEER.—On July 25, a flock of about 75 appeared. They continued common until Sept. 16 when the majority were frightened away. From the 16th of Sept. to Oct. 20 scattering flocks of from 3 to 50 appeared, so that they were never entirely absent from the beaches. The last record was made Oct. 27.

Ægialitis semipalmata. SEMIPALMATED PLOVER.—First appeared July 23; common until the 16th of September; a last straggler Nov. 3. This bird was poor in flesh and had probably been wounded.

Arenaria interpres. TURNSTONE.—On Sept. 15, three of this maritime species were seen running along the sand beaches, prying under shells, bark and bits of water plant in their characteristic manner. One was collected the following day in the same place.

Most of these records were not made in time to be included in the recent paper by Reed and Wright on 'The Vertebrates of the Cayuga Lake Basin, N. Y.' and hence we have the occasion of their presentation at this time.

It might be well in this connection to mention also the capture of a Yellow Rail (*Coturnicops noveboracensis*) at Ithaca, Nov. 3, and an immature King Eider (*Somateria spectabilis*) at the north end of the Lake (Cayuga), Nov. 26 by Mr. J. T. Lloyd.—ARTHUR A. ALLEN, *Ithaca, N. Y.*

Top-White on Mammals and Birds.—This is one of the points in our book (Concealing-Coloration) upon which some naturalists have not yet understood us. They have not read us carefully, and take our pictures

for mere illustrations of a theory. In every case, however, the picture *proves* the optical fact, and also shows the reader how he may for *himself* prove it out-of-doors, if he will carefully follow directions.

Take, for instance, our Figs. 114-115, which show photographs of a white card against a dark background and against the sky. In Fig. 115 the card is brightly conspicuous; in Fig. 114 it has *vanished from its place*, merely because it was photographed from *two feet lower down*. Surely naturalists must realize that the visible card makes a certain impression on the mind, while that in Fig. 114 makes no impression at all, unless I call their attention to the fact that it is really there although invisible.

I can prove to them in many ways that the case of an antelope's white stern-patch is subject to the same laws. *Men have always been of a stature that made them apt to see the deer's or antelope's white brightly defined against the ground*,—and whenever the animal displayed it from a higher ridge so that it had the *sky* behind it, it was nearly or quite invisible to them, and so made little or no impression on their minds.

We will assume, however, that man's eyes, being normally five or six feet above the plain, commonly perceive this white when it is displayed within their field of vision. But coyotes', wolves', and cougars' eyes are all *below* the level of this rear-patch, and just as commonly see it against the *sky* as man sees it against the ground. Beyond all dispute it is exactly the color *not* to show to the eyes of any of these predators. Equally wrong-colored is it for the sight of the fawn (so often said to have it for a guide), as well as for the adults when their heads are down in the act of grazing. How can naturalists believe that nature would give this 'signal' a color that failed to succor the most helpless members of the wearer's race, the young? *If any naturalist will once look at such white from the fawn's level in the night*,¹ he will see the absurdity of the old conception.

We all agree that whenever the antelope flashes this mark it *is* a sign of alarm. If it is, it must serve as a warning *to all antelopes that see it*, exactly as naturalists now believe. It must put all the antelopes that see it on the alert. There are, however, a number of other forms of signalling that obviously outrank it in serviceability. This white rear is, even when seen against the ground, only visible from *one* direction. The upraised head of an antelope watchful and sniffing stands almost as high again, and against the sky always shows dark, while its gesture always betrays to kindred animals its emotion. So must the characteristic

¹ The experimenter will find that even out in the open field it is only when the white surface faces more or less upward that it gets enough illumination to be as bright as the sky and becomes indistinguishable. Whenever the sky is partly hidden by trees the white gets too little light to match it. But while it often fails to be *bright enough* to disappear, practically never anywhere in the night is it *too* bright. It is at the moment when the white rear of the antelope, deer, or hare faces most *upward*, at the highest part of his leap, and when his head is descending, that the best 'obliteration' comes.

alarm-sounds of the species. While the high head *shows from all directions*, and nearly twice as far, and in the open always dark against bright sky, this famous 'blazon' is never in sight but from one direction at a time, and even from there no fawn or any member of the herd that chances to have its head lowered as in grazing will often see it against anything but sky. Add to this that the signal only tells of danger perceived by the signaller, and generally concerning *him* the most. Lastly, this discussion is all about *day-time* signalling, and these ruminants are then in their least danger.

Now I beg attention once more to what I believe to be the cardinal use of this white. At night, when these animals are stalked, the stalker as we all believe, creeps as *low* as possible (presumably so as not to show against the sky). The nearer he gets the surer is the deer's first bound to bring his rear-white against the sky. In short, to get near enough to seize the deer or antelope means for the predator to be so situated that the white patch (like one's hand held before one's eyes, which though only four inches wide covers the entire landscape) blots out the whole deer, putting in his place an imitation of sky.

Nothing but actual personal experimenting such as I myself have done will bring home this wonderful fact to naturalists. No more miraculous safety-provision could be dreamt of. And if it is the magical thing I show it to be, and always comes into play at the animal's life-and-death moments, could it fail to come into automatic operation whenever the slightest stimulus to fear reached the animal's brain? Does there remain any ground whatever to consider that it exists *for* signalling?

It will soon be perceived that the world of terrestrial animals, both mammals and birds, are furnished with this top-white in very apparent proportion to their need of not showing against the sky:—grubbing predatory mammals and ground-feeding predatory birds having it in front, and the rest wearing it behind, exactly where it does them the same *obliterative* service that it does the antelope.

Tennis players know that they play their best game while the balls are clean and show white against the dark ground. And the same principle is observed by 'squash' players, who reverse the thing — using dark balls against a light background. How could these close-lying animals that must bound away at the last moment fail to develop a coloration that made them the worst of targets for their stalkers? Surely it is what most *directly* saves their lives that is of the very most account to them.

ABBOTT H. THAYER, *Monadnock, N. H.*

RECENT LITERATURE.

Eaton's '*Birds of New York*.'¹—No comprehensive work on the birds of New York has been published since the appearance of DeKay's quarto in 1844 and therefore, Memoir 12 of the State Museum (New York State Education Department) promises to be a most welcome contribution to the ornithology of the Empire State, judging by the first volume, which has just come to hand.

Mr. Elon Howard Eaton, who has spent five or six years in gathering and arranging the data, is to be congratulated on the results embodied in this first part, which covers the Water Fowl, the Game Birds and the Pigeons. The number of species accredited to the State has increased from 301 to 411 in the sixty-four intervening years and two heavy quartos take the place of DeKay's single volume. The opening chapter is a 'Summary of the New York State Avifauna,' the birds being classified in groups of 'residents,' 'summer residents,' 'transients,' 'winter visitants,' 'summer visitants,' and 'accidental visitants.' Then follows a chapter on the 'Life Zones of New York State,' accompanied by maps showing the distribution of some thirty species of the land birds and a table illustrating by a graphical method the relative zonal abundance of all of the birds of the State. The photographic maps are perhaps superior to anything yet published in a work of this character, being shaded to show elevation and with the distribution indicated by oblique red lines, but it is to be regretted that the lettering is so indistinct as to be well-nigh illegible. Those of us weak in geography would have liked besides a map showing the localities cited. There are also preliminary chapters on 'The Mt. Marcy Region,' 'The Increase and Decrease of Species,' 'Suggestions to Bird Students,' 'Bird Migration,' 'Spring Arrivals,' 'Published Local Lists,' 'County Schedules,' and 'Classification.' The remaining half of the text is given up to the birds of the State arranged in systematic order, every species being concisely described, and concerning many of them is found also a wealth of original information, classified under the headings 'Field Marks,' 'Distribution,' 'Migrations,' 'Haunts and Habits,' 'Nest and Eggs,' 'Food,' and some others. Forty-two colored plates, by Mr. L. A. Fuertes, conclude the volume.

Mr. Eaton has followed the A. O. U. Check-List in classification and in scientific names, but in the use of vernacular names he has yielded to the modern fad of discarding capitals and suppressing the possessive case.

¹Birds of New York. By Elon Howard Eaton.=Memoir 12, New York State Museum. John M. Clarke, Director. Part I. Introductory Chapters; Water Birds and Game Birds. 4to, pp. 501 (facing leaves to plates numbered as pages; 148 pp. of tabular matter, unpagged, between pp. 86 and 87), 42 colored plates, and numerous, half-tone illustrations in the text. Albany: University of the State of New York, 1910.

In birds called 'Wilson thrush' and 'Wood thrush,' for instance it would be quite reasonable to suppose both were named after persons, and where we find 'South Bay, L. I.' 'Shinnecock bay,' 'Gardiners island, L. I.,' 'East river,' 'Lewis co.,' 'Montauk Point,' 'Onondaga lake,' 'Black-throated blue warbler,' 'Long-billed marsh wren,' and so on, we may well wonder why capitals are used at all. These are, however, rather trivial matters and in no wise impair the excellence of Mr. Eaton's work the thoroughness of which is manifested in many ways. His descriptions are good, his compilations of records are well done, and his many comparative tables of spring arrivals and of analysis in parallel columns of the species of different local lists are excellent. It is rather unfortunate, though, to have had these voluminous tables printed on one side only of the sheets, for it has resulted in a solid half inch thickness of unnumbered pages, that are a sort of huge typographical Sahara wherein one wanders about seeking the oases of information. Added to the difficulty of finding one's way we are confronted by a host of unfamiliar abbreviations which are explained only at the top of Section 1, part 1. This necessitates too much thumbing of pages with fingers stuck in to keep the place, and it is a pity we could not find at the bottom of every page the meaning of such mystic symbols as 'c, fc,' 'unc,' 'ab,' 'oe,' 'tv, wv,' etc. For the convenience of those who use the tables it may also be stated that the migration lists are not numbered at all while the local list analysis sheets are arranged so that Section 1, parts 1-15, includes species from Holboell's Grebe to the White-faced Glossy Ibis; Section 2, parts 1-18, continues the list to the Short-eared Owl; Section 3, parts 1-21, carries it to the Cardinal; and Section 4, parts 1-21, completes it.

Mr. Eaton has introduced the feature of giving the pronunciation and derivation of the Latin names, and the few slips noted are probably not his fault. Coues in his early 'Keys' correctly explained the *aquilus* of *Tachypetes aquilus* as an adjective, meaning "swarthy," but later when, with the feminine generic name *Fregata* it became *aquila*, he erred in introducing the idea of "eagle," which now reappears at p. 176. The *tympanum* of *Tympanuchus* at p. 376, means a drum rather than a "membrane," and at p. 316 is a misprint for *ἱμαντόπους*. On page 76, George N. Lawrence's paper is wrongly cited, both as to title and source. It was a 'Catalogue' published in the 'Annals' of the New York Lyceum of Natural History of New York, but as a rule there is little need for corrections as one turns the pages.

The printing of the volume is good and the type well chosen and clear. The coated paper, however, makes the book weigh like lead, and it is particularly vulnerable to the ravages of time, so that DeKay's quarto is likely to outlast its successor; and we believe that the photo half-tones scattered through the pages would have appeared to better advantage as separate plates.

The colored plates are faithful and often beautiful portraits of the species, and some of the bits of landscape are charming, but taken as a whole there

is something disappointing in them. Aside from the crowding of several species on the same plate, and the numerous different reductions from the natural size of the birds, details for which the artist cannot be held responsible, there is also something wrong with the perspective. The birds are apparently too large for the landscapes or, to put it the other way, the landscapes are too small for the birds, as the human eye really sees them under ordinary conditions in nature. With our faces to the ground within a few inches of a Woodcock, he no doubt would look like plate 31, and the landscape of plate 2 would appear lovely if a group of Loons were not swimming on the very tips of our noses. Compare these compositions with the charming Pintails of plate 15, or the Hooded Mergansers of plate 11, where the disproportion of birds and landscapes is reduced to a minimum and every stroke of the artist's brush is pleasing. Bird artists of late years have been made victims of the popular demand for pictures showing birds as well as their surroundings at the same time and personally the reviewer is of the opinion that this combination is rarely successful and that the plates of long ago when devoid of background are more dignified and effective than any of the modern efforts to combine in one picture things that are really incompatible.—J. D., Jr.

Godman's Monograph of the Petrels.¹—Part V, published in May, 1910, brings to a close the most important and one of the most needed ornithological monographs of recent years, and we heartily congratulate the author on the successful completion of this great undertaking. As stated in the Preface, for many years the author's colleague, Osbert Salvin, was engaged in amassing a large and valuable series of specimens of Petrels from all available sources, with the intention, "on the completion of the 'Tubinares' for the twenty-fifth volume of the Catalogue of Birds in the British Museum, to write a fuller account of the Petrels, and publish it as a Monograph, illustrated by coloured figures of each species; for that purpose we had some forty plates prepared by Mr. Keulemans, but Salvin's untimely death, in June, 1898, put an end to this project." Although the work was delayed for many years, in consequence of Mr. Godman's occupation with the completion of the 'Biologia Centrali-Americana,' the preparation of the plates was continued, and on the completion of that immense undertaking he turned again to this long-projected Monograph,

¹ A | Monograph | of the | Petrels | (Order Tubinares) | By | Frederick Du Cane Godman | D. C. L. F. R. S. | President of the British Ornithologists' Union | With hand-colored Plates | by J. G. Keulemans | Witherby & Co. | 326 High Holborn London | 1907-1910 — One Vol., large 4to, pp. (v + 381, 106 colored plates. Issued in 5 parts: Part I, December, 1907; Part II, March, 1908; Part III, September, 1908; Part IV, April, 1909; Part V, May, 1910. Edition, 225 numbered copies. Subscription price, £2 5s. per part, or £10 10s. for the whole work, if paid in advance.

For previous notices in 'The Auk' see Vol. XXV, 1908, pp. 244, 338; Vol. XXVI, 1909, pp. 95, 223.

and, he adds, "with the able assistance of Dr. R. Bowdler Sharpe," he no longer hesitated to make a commencement. The work has been carried out on the lines projected by Salvin, and conforms in classification, with slight alterations, to Salvin's Catalogue of the Petrels in the British Museum Catalogue of Birds. His collaborator, Dr. Sharpe, "lived to see the practical conclusion of the Monograph and to revise the proofs of all but the last few pages."

The concluding Part V treats of the Diving Petrels (genus *Pelecanoides*) and the Albatrosses, which number 19 species, referred to the three genera *Diomedea*, *Thalassogeron*, and *Phæbetria*,—perhaps the most interesting and in some respects the most difficult group of species to deal with in the whole order Tubinares. As in previous parts, the treatment is technical, historical and biographical, not only the history of each form being given, but also a summary of its life history and distribution, so far as these are known. This part also includes, besides the index and introduction to the whole work, a contribution by W. P. Pyecraft 'On the Systematic Position of the Petrels' (pp. xv–xxi), and the 'Classification' (pp. xxxiii–lv), containing the diagnoses of the genera and higher groups, and keys to the species. The number of species recognized is 124, of which 104 are figured. The three largest genera are *Oceanodroma* with 13 species, *Puffinus* with 25, and *Æstrelata* with 32. As the nomenclature is strictly binomial, 'species' here means forms, many of which are apparently reducible to subspecies. The reader may be assured, however, that he will find here the substance of what is known of their status and relationships, given with full references to the original sources of information. It is almost needless to add that the plates are excellent, and that the letter press and general execution are of the high standard well-known to characterize the works of the publishers, Witherby and Co.—J. A. A.

Coward's 'The Vertebrate Fauna of Cheshire.'—This work, in two octavo volumes,¹ adds another excellent monograph to the long list of recent contributions to a detailed knowledge of the fauna of the British Islands. Its scope is the whole vertebrate fauna of Cheshire, a county in the north-west of England, bounded on the west by Liverpool Bay and the estuaries

¹ The | Vertebrate Fauna of Cheshire | and Liverpool Bay | Edited by | T. A. Coward, F. Z. S. | Author of "Picturesque Cheshire." | In two Volumes | . . . | With illustrations from photographs by | Thomas Baddeley | Witherby & Co. | 326 High Holborn | London | 1910.—2 vols. 8vo, 26s. net.

[Vol. I.] The Mammals and Birds of Cheshire | By | T. A. Coward and C. Oldham, F. Z. S., M. B. O. U. | Authors of the "Birds of Cheshire" | — Pp. xxxii + 472, 34 half-tone plates.

[Vol. II.] The Dee as a Wildfowl Resort | By John A. Dockray | — | The Reptiles and Amphibians of Cheshire | By T. A. Coward and C. Oldham, F. Z. S., M. B. O. U. | Authors of "The Birds of Cheshire" | — | The Fishes of Cheshire and Liverpool Bay | By James Johnstone, B. Sc. (Lond.) | Author of "British Fisheries" and "Conditions of Life in the Sea" | Pp. xl + 210, 14 half-tone plates, text illustrations, and map.

of the Dee and Mersey. The extent of the area treated is a little more than one thousand square miles, the greater part of which consists of an undulating plain, ranging in elevation from about 100 to 300 feet, with ridges along the eastern border that attain altitudes of 1650 to about 1900 feet. There are marshy tracts between the estuaries of the Mersey and the Dee, giving considerable diversity to the area as a whole.

The introduction (pp. xi-xxii), besides describing the topography and faunal aspects of the county, summarizes the literature of the subject, and the influence of game preservation, which, "direct and indirect, . . . is great and far-reaching." "Incessant war is waged against predatory mammals and birds, whilst other creatures inimical to game and often of benefit to the agriculturist, are destroyed by biassed and indiscriminating game-keepers. . . . Any creature, therefore, against which there is even traditional suspicion is under their ban." The raptorial birds and mammals have suffered to such an extent that the polecat, marten and otter have become extinct, several of the larger birds of prey are becoming rare or have long since vanished, while the "Magpie, Carrion Crow and Jay are in some districts almost extinct." On the other hand, their destruction contributes materially to the welfare of many passerine birds, as does the preservation of fox and pheasant coverts.

Forty-six species of mammals are recorded (pp. 1-89) as having occurred "within recent years in Cheshire and its territorial waters." The birds, of which "there is satisfactory evidence of their occurrence in a wild state during the present and last centuries," number 231 species (pp. 93-459). Cheshire "lies remote from the great highways of migration, and consequently its avifauna is poor in regard to many of the species which occur frequently on the shores of such counties as Yorkshire, Norfolk, Kent and Sussex."

The nomenclature is that of Howard Saunders's 'Manual of British Birds,' as revised by him in 1907, except that trinomials are used for British races, since "the trinomial system of nomenclature, . . . in addition to other advantages, shows plainly the real affinities of the local races or subspecies." The method of treatment consists in giving the commonly accepted English and technical names of each species, followed by its local names, and a summary statement (in a line or two of small heavy-face type) of its manner of occurrence in Cheshire. No references are given to previous works, general or local, nor any description of the species, these being readily available in numerous recent manuals of British birds. The text is thus mainly biographical, and varies in amount for the commoner resident and breeding species from one to several pages; to the rarer ones less space is given, with references in footnotes to previous records of occurrence.

In addition to the bird matter contained in Volume I. there is an interestingly reminiscent chapter in Volume II (pp. xxi-xl) on 'The Dee as a Wildfowl Resort,' by John A. Dockray. The remainder of Volume II is devoted to the Reptiles (5 species), Amphibians (6 species) and Fishes, the

latter occupying the greater part of the volume, which closes with about thirty pages of bibliography and an index.

Although so many works, general and local, have been published in recent years on the vertebrate animals of the British Islands, there is still room for many more, if of the trustworthy class of this excellent summary of 'The Vertebrate Fauna of Cheshire.' — J. A. A.

The Beebe's 'Our Search for a Wilderness.'¹ — We have rarely had the opportunity to read a book of travel so charmingly written or so full of interest as Mr. and Mrs. Beebe's 'Our Search for a Wilderness. It is "the tale of two searches for a wilderness," the first, undertaken in the early part of 1908, was to the country about the Venezuelan Pitch Lake, La Brea; the other, made in the early part of 1909, was to British Guiana, where three excursions were made from Georgetown into the "wilderness." In neither "search" were their travels into the interior very extended, but they succeeded in each instance in reaching a nearly virgin wilderness, where animal and plant life was found in tropical luxuriance, unchanged to any material extent by the hand of man. Their trips into the interior were by water routes, by a small sloop or with a canoe and Indians.

The first hundred and ten pages deal with the Venezuela trip, made from Port of Spain, Trinidad, up the Caño San Juan to the Pitch Lake, sailing and paddling for days "through a land of mangroves and water, where, with the exception of two tiny muddy islets in the forest, there was no solid ground." At last "real earth" was reached, and the foothills of the northern Andes were seen beyond La Brea, the latter in the heart of the forest. "We were at the village of Guanoco, the shipping point of the pitch lake. A few steps beyond the last hut and one was in the primeval forest — so limited is man's influence in this region of rapidly growing plants." With this point as a base, several weeks were spent in exploring the neighboring forests, rich in tropical life and in new experiences for our travellers. This part of the book consists of three chapters, the first, entitled 'The Land of a Single Tree' (the mangrove); the second, 'The Lake of Pitch'; the third, 'A Woman's Experiences in Venezuela', written by Mrs. Beebe. The other two, as is a large part of the book, are written jointly by both authors.

Part II relates to British Guiana, and occupies about three fourths of the volume. The first chapter is devoted to Georgetown, the next two to a steamer and launch trip to Hoorie Creek, and thence a few miles by cart to "a gold mine in the wilderness." Then follows an account of a canoe

¹ Our Search for a | Wilderness | An Account of two ornithological Expeditions | to Venezuela and to British Guiana. | By | Mary Blair Beebe | and | C. William Beebe | Curator of Ornithology in the New York Zoölogical Park; | [etc. = 4 lines of titles] Illustrated with Photographs from Life | taken by the Authors | [colophon] | New York | Henry Holt and Company | 1910 — Svo, pp. xix + 408, frontispiece and 160 half-tone text illustrations, many of them full-page. Published April, 1910.

trip with Indians through the "coastal wilderness," via little-known rivers and creeks. Two chapters are given to jungle life on Aremu River, the locality of the gold mine already mentioned. A concluding chapter is devoted to the coast savannas, under the title, 'The Life of the Abary Savannas.' Supplemental matter in appendices is a classified list of the birds observed, the 161 species being numbered and referred to in the text only by their vernacular names with a reference by numbers to the list, in lieu of burdening the text with the frequent repetition of technical names. There is also a list of native Guianan names of birds, and a list of the moths and some other insects collected in Guiana, "as far as they had been determined" when the book was sent to press. The principal ornithological results of the trip to Venezuela have been set forth in two special papers entitled respectively, 'A Contribution to the Ecology of the Adult Hoatzin,' and 'An Ornithological Reconnaissance of Northeastern Venezuela,' published late in December, 1909.¹

Mr. Beebe was accompanied on his Guiana trip by Mr. Lee S. Crandall of the New York Zoölogical Park, by whose aid nearly three hundred living birds were brought back to the Park, representing fifty-one species, besides many small mammals and reptiles, mostly new to the collection.

Mr. and Mrs. Beebe are both, temperamentally and otherwise, well fitted for exploration in tropical forests and jungles; that they are enthusiasts in this line of field work, and well-equipped for making good use of their opportunities, is evidenced not only by their 'Our Search for a Wilderness,' but by their earlier 'Two Bird Lovers in Mexico,' with which doubtless many readers of 'The Auk' are already familiar. But the later work far excels the former one in interest, as regards both the scenes visited and the information conveyed. The tale is simply and enthusiastically, and hence fascinatingly, related, and contains much that is wholly new or reported from a new view point. Their keen interest and admiration seem to have been almost equally awakened by all forms of invertebrate as well as vertebrate life, and by plant life as well, and they appear to have been constantly impressed by the abundant examples of "protective form or coloration" met with at every turn. The profusion of excellent illustrations add greatly to the value and interest of this exceedingly attractive book.—J. A. A.

Festa's 'In Darien and in Ecuador.'²—Dr. Enrico Festa left Italy early in 1895 on a natural history expedition to Ecuador, but owing to a revolution then in progress in that country was obliged to wait for some months for the return of more favorable conditions, in the meantime spending several months in exploration in Darien. He thus arrived at Guaya-

¹ See *antea*, pp. 227, 228.

² Dr. E. Festa | *Nel Darien e nell' Ecuador* | *Diario di viaggio di un naturalista* | 1909 | Unione | Tip.-Editrice | Torinese | Corso Raffaello, 28 | Torino — 8vo, pp. xvi + 397, with 2 maps and about 75 half-tone plates. Lire 10.

quail late in September, 1895, and travelled and collected in Ecuador till about the end of February, 1898, when he returned to Europe. His work was mainly in the Andean region, which he traversed from Cuenca to beyond Tulcan. He made extensive collections in all departments of zoölogy, but especially of mammals, birds, reptiles, and fishes. From the summary of the 'Zoölogical Results' given at the end of the volume, it appears that a large part of the mammals and much of the invertebrate material still remains unpublished. The birds were promptly worked out and published in coöperation with Professor Salvadori,¹ the collection of Ecuador birds alone numbering nearly 3000 specimens and 613 species, of which 17 proved to be new. The present volume, as the title shows, is the author's diary of his explorations, and contains much of general interest concerning the countries visited and their people, especially the Indians and their antiquities, besides the wide range of natural history notes one would expect to find in the diary of a naturalist engaged in exploration. The numerous half-tone plates give views of characteristic Andean and other scenery, and of the natives, their habitations, utensils, weapons, and ornaments. Only the first 53 pages are devoted to Darien, where the author spent only a few months of his three years of exploration in Central and South America. Although the text abounds in references to the birds and other forms of animal life, there is unfortunately no index to enable one to turn readily to the information here so abundantly recorded. — J. A. A.

Thoreau's 'Notes on New England Birds.'—Mr. Francis H. Allen has brought together in a handy volume, published by the Houghton Mifflin Company,² the notes on birds scattered through the fourteen volumes of Thoreau's published 'Journal', "in the belief that readers and students would be glad to have these bird notes arranged systematically in a single volume." The editor has thus earned the gratitude of bird lovers and of the many admirers of Thoreau's quaint and often poetic manner of recording his observations and interpretations of nature. These bird notes were jotted down in Thoreau's diaries mainly between the years 1850 to 1860, with a few of later date and some written as early as 1842. Thoreau was a keen observer, and had much to record about many species, and though not an ornithologist, and sometimes mistaken in his identifications, being autoptically acquainted with very few species, his records have value as covering a period when ornithological observers were few, and the means of identification scanty in comparison with the profusion of hand-

¹ Noticed in *The Auk*, Vol. XVI, 1899, p. 292; Vol. XV, 1900, pp. 81, 303.

² Notes on | New England Birds | By | Henry D. Thoreau | arranged and edited | by | Francis H. Allen | With Illustrations from Photographs | of Birds from Nature | [colophon] | Boston and New York | Houghton Mifflin Company | The Riverside Press, Cambridge | 1910 — 12mo, pp. xiv + 452, 8 half-tone plates, and map of Concord, Mass. May, 1910. \$1.75 net.

books and local collections available to present day bird lovers. In this republication of Thoreau's bird notes the original author of them is most fortunate in having the work fall to the lot of an editor and commentator so sympathetic, intelligent, and painstaking. The 'notes' are of course fragmentary, but when brought together chronologically form a considerable amount of text about each of the more common species of the 'Concord region', where Thoreau lived, made surveys, walked in the woods and fields, and made daily note of what he saw and experienced.

The present volume is made up exclusively of excerpts from the 'Journal,' but the editor has given in an Appendix an index to the bird matter contained in Thoreau's other works, so that within the present volume are given not only the passages contained in the 'Journal' but an index to all of Thoreau's other ornithological references, these amounting, it is stated, "to less than one twelfth as much as that contained in the 'Journal'." A map of Concord, compiled by Herbert W. Gleason, shows the localities mentioned by Thoreau in his Journals, and is based in part on Thoreau's own surveys. This map is furnished with an index, thus greatly facilitating its use in reading the 'Notes,' and furnishing pilgrims to the haunts of Thoreau with the means of locating and identifying his favorite resorts.—J. A. A.

Ridgway on New Forms of Swifts and Hummingbirds.¹—In this paper Mr. Ridgway describes a new species of *Chætura* (*C. richmondi*) from Costa Rica, a new subspecies of *Streptoprocne* from Mexico, and two new subspecies of *Cypseloides niger*, respectively from Costa Rica and Jamaica; also a new species and five new subspecies of Hummingbirds, mostly from Mexico and Costa Rica. A new genus *Nesophlox* is proposed, with *Trochilus evelynæ* Bourcier as the type.—J. A. A.

Swarth on Two New Owls from Arizona.²—The first of the two new subspecies here described is *Otus asio gilmani*, nearly related to *O. a. cineraceus*, but described as paler and smaller, and as occupying a different life zone, it inhabiting "the giant cactus country, valleys and mesas which are subject to extremes of heat and aridity, while *cineraceus* is at home along the shaded cañon streams and on densely timbered hillsides." The other is a subspecies of the Spotted Owl, and is named *Strix occidentalis huachucae*, described from a single specimen from the Huachuca Mountains of Arizona, and as differing from true *S. occidentalis* in being paler and smaller. The juvenal plumage of the latter is here described for the first time from two specimens taken near Pasadena, California, both from the same brood and just able to fly when captured.—J. A. A.

¹ Diagnoses of new forms of Micropodidæ and Trochilidæ. By Robert Ridgway. Proc. Biol. Soc. Washington, Vol. XXIII, pp. 53-56, April 19, 1910.

² Two New Owls from Arizona, with Description of the Juvenal Plumage of *Strix occidentalis occidentalis* (Xantus). By Harry S. Swarth. University of California Publications in Zoology, Vol. VII, No. 1, pp. 1-8. May 26, 1910.

Mailliard on the Redwings of California.¹—The old question of the relationship of the *Agelaius gubernator* group to the *A. phæniceus* group of Redwinged Blackbirds is again here discussed by Mr. Joseph Mailliard, and the conclusion reached that "*gubernator* is directly connected with *phæniceus* and that *A. gubernator californicus* is rightly *A. phæniceus californicus*." This conclusion is based on a detailed study of a large amount of material from different parts of California, including a large series of specimens collected from a breeding colony in Stanislaus County. His paper is illustrated with photographs to show the variation in the amount of streaking on the ventral surface of a series of females, and the amount of black tipping the middle wing coverts of males, and by an extensive table of measurements of *A. gubernator californicus* and *A. phæniceus neutralis*; showing that neither size nor other alleged characters suffice sharply to separate these two forms, and that their real relationship is that of subspecies of *A. phæniceus*. The view here expressed is in harmony with that held by Coues in 1872 to 1884, and by Ridgway in 1874 to 1880, and by other good authorities of that period, and Mr. Mailliard's new evidence seems to point strongly to the conclusion that these 'lumpers' of earlier days were, at least in this instance, not far from right in their treatment of these forms.—J. A. A.

Clark on Birds Collected or Observed in the North Pacific Ocean and adjacent Seas.²—During the cruise of the United States Fisheries Steamer 'Albatross,' in the North Pacific Ocean and in the Bering, Okhotsk, and Japan Seas and adjoining waters, for the investigation of fish and marine invertebrates, Dr. Clark, the author of the present report on the birds collected or observed on the cruise, was able, in addition to his work on fishes and marine invertebrates as the representative of the Fisheries Bureau, to devote considerable attention to the birds met with. In addition to the 180 specimens brought home as skins, many more were studied in the flesh or observed in life. The notes and the specimens taken during the trip form the basis of the present report, which comprises notes on about 175 species, nearly equally divided between water birds and land birds. Observations began with the departure of the 'Albatross,' May 3, from San Francisco, and were continued until the steamer again dropped anchor at San Francisco, December 10.

The author was able to spend a day or two on shore at Dockton, Wash-

¹ The Status of the California Bi-colored Blackbird. By Joseph Mailliard. Condor, March, 1910, pp. 63-70, figs. 22, 23, from photographs by the author.

² The Birds collected and observed during the Cruise of the United States Fisheries Steamer "Albatross" in the North Pacific Ocean, and in the Bering, Okhotsk, Japan, and Eastern Seas, from April to December, 1906. By Austin Hobart Clark, Assistant Curator, Division of Marine Invertebrates, U. S. National Museum. Proc. U. S. Nat. Mus., Vol. XXXVIII, No. 1727, pp. 25-74. Published April 30, 1910.

ington, at Union Bay, Vancouver Island, at some of the Aleutian Islands, a few hours at Copper Island and Bering Island, with short halts at various points along the Japanese and Kamchatkan coasts. The list contains important notes on many of the species, as the Puffins, Auklets, Guillemots, and other sea birds met with along the American coast, in the Aleutian Archipelago, in the Kuril Islands, and along the coast of Kamchatka. The only Point Barrow Gull seen was observed in Patience Bay, Sakhalin, while the Vega Gull "was rather common in Unalga Pass, near Unalaska," and was seen again, in small numbers, in Avacha Bay, Kamchatka. There are also interesting notes on the Albatrosses, the Pacific Fulmar, and the various species of Petrel observed. The Kamchatkan Sea Eagle (*Thrasaetus pelagicus*) is recorded as seen near the town of Unalaska, but unfortunately was not obtained. So sure is Dr. Clark of its identification that he says: "A thorough survey of these [Aleutian] islands may show that this species, as well as *Haliaetus albicilla*, which has been recently recorded from Unalaska, are of more or less regular occurrence throughout the whole group."

Under *Lagopus lagopus alexandræ* are several pages of critical notes on Ptarmigans, with figures of bills of three forms of the *L. lagopus* group, and a key to the American subspecies of *Lagopus lagopus*, three being recognized, as follows: (1) *L. l. alleni*, Newfoundland; (2) *L. l. albus* (Gmelin), inhabiting "northern Labrador, westward and northward to northern Alaska, reaching Point Barrow, Kotzebue Sound, Cape Lisbourne, and Kowak River (type locality, Hudson Bay)"; (3) *L. l. alexandræ*, "southern Alaska, from coasts of Norton Sound and Alaska Peninsula, including Kadiak and Shumagin islands, southeastward to mountains of southeastern Alaska."

The paper as a whole contains much interesting information about a large number of species, particularly the pelagic forms and those breeding at the various northern islands visited. The cruise afforded rare opportunities for ornithological observation, and they seem to have been well utilized.—J. A. A.

Clark on Birds collected by P. L. Jouy in Korea.¹—The late Pierre Louis Jouy spent over three years (between 1881 and 1886) in Korea, and at the time of his untimely death in 1894 was engaged in the preparation of a report on the ornithological collection made by him in that country, numbering 554 specimens, and representing, according to Dr. Clark's present account, about 165 species. In 1907 Dr. Clark published a considerable number of new species from Jouy's collection,² and incidental

¹ Report on a Collection of Birds made by Pierre Louis Jouy in Korea. By Austin F. Clark, Assistant Curator, Division of Marine Invertebrates, U. S. National Museum. Proc. U. S. Nat. Mus., Vol. XXXVIII, No. 1735, pp. 147-176. Published May 9, 1910.

² For a review of this paper see Auk, Vol. XXIV, 1907, p. 453.

use has been made of it by others, including Dr. Clark in the preparation of his report on the birds of the 'Albatross' cruise of 1906 (reviewed above), but no full report upon it has been published until now. In the meantime some of the birds first obtained in Korea by Jouy have already been recorded by others, and in order to secure to him the proper results of his labors this report is now offered in its present, as the author states, not wholly satisfactory form. It is, however, the most important contribution yet made relating distinctively to Korean ornithology.—J. A. A.

Walter's 'Wild Birds in City Parks.'—The fourth revised and enlarged edition of this "handy pocket guide to the birds"¹ has been greatly extended since our notice of the first revised edition in 1903 (Auk, XX, p. 316), the number of species treated having been increased from 100 to 200, the amount of matter more than doubled, and the table of comparative distribution greatly extended, it now covering the northern tier of States from Maine to Illinois and Missouri. The note to the present edition states that the entire subject has been thoroughly revised, "with the end in view of making the book useful in all localities in northeastern United States from the Mississippi to the Atlantic coast." That the book has proved useful is to be inferred from the statement that the present printing is the "eighteenth thousand."—J. A. A.

Collinge on Food Habits of the Rook.²—This investigation, which has been carried on more like similar studies in the United States than any other European work on economic ornithology we can recall, is based on the examination of 830 stomachs of Rooks, collected at all seasons in 41 counties of England and Wales. The bulk of the food taken from these gizzards was grain, chiefly wheat. A comparatively small amount of weed seeds was present, and much acorn mast, some gooseberries, currants, grass roots and potatoes complete the list of vegetable foods. Animal food averaged in the 12 months only 15 per cent. of the total food contents of the gizzards. The proportion varied from 1 per cent. in January to 40 per cent. in July. Beetles, their larvæ, and caterpillars were the principal items. Remains of the following vertebrates were found: long-tailed field mice (*Mus sylvaticus*), rat (?), rabbit, and young birds, including blackbirds. Blackbirds' and pheasants' eggs were taken from 1 and 5 stomachs, respectively. From these details it is evident that the Rook

¹ Wild Birds in City Parks. Being hints on identifying 200 birds, prepared primarily for the spring migration in Lincoln Park, Chicago, but adapted to other localities. By Herbert Eugene Walter and Alice Hall Walter. Fourth enlarged Revision, with Chart and Key, Author's Edition. 1910. 16mo, pp. 92. Single copies, 35 cents; packages of ten, \$2.50.

² Collinge, W. E. The Feeding Habits of the Rook (*Corvus frugilegus*, Linn.). Rep. to the council of the Land Agents' Society, April 1, 1910. Pp. 1 to 23. London.

gets its living in much the same way as the American Crow. The similarity is further evident in a marked preference for scarabæid and carabid beetles. A most remarkable difference in food habits is the almost total absence of orthoptera from the diet of the Rook. Neither grasshoppers nor crickets are mentioned in this paper nor in the two reports mentioned below, while these insects compose a large proportion of the food of the American Crow and are a great favorite with most ground feeding birds of the United States.

The author concludes that "so far as the evidence of this inquiry shows, the rook is not a particularly beneficial bird to the agriculturist, although its usefulness might be considerably increased were it fewer in numbers." This opinion agrees with that of John Gilmour¹ on the Rooks of Fifeshire, which was based on an examination of 355 gizzards. In view of the same conclusion being reached in two extensive investigations, one local, the other general, there is little doubt that it accurately sets forth the economic status of the Rook in Great Britain.

A more favorable opinion of the Rook is held in Germany, Hollrun² stating that the harm done by the birds in April, May and June is considerably outweighed by useful services. The proportion of animal matter in the 131 stomachs collected in these months was 66 percent., almost 2½ times the percentage found in English Rooks during the same period.—W. L. M.

Finn's 'The Waterfowl of India and Asia.'—This is a revised edition,³ under a new name, of "How to Know the Indian Ducks," amplified by the inclusion of all the Asiatic species of the family. Forty-two species, including stragglers, are recorded from India alone, and the heads of half of this number are illustrated by good figures.

The biographies are full and interesting and much attention is given to the differences between the closely related species and also to the characters of the higher groups. As a further aid in identification two synoptical tables are added. The lack of an alphabetical index will be a source of inconvenience to the users of this otherwise handy little work.—W. De W. M.

Publications Received.—Allen, Francis H. Notes on New England Ornithology, by Henry D. Thoreau, arranged and edited by Francis H. Allen. 12mo, Houghton Mifflin Co., Boston and New York, May, 1910. \$1.75 net.

¹ Trans. Highland and Agr. Soc. of Scotland, 5th ser., Vol. VIII, pp. 21-113, 1896.

² 7ter Jahresbericht Versuchstation f. Pflanzenschutz zu Halle, pp. 5-26, 1895.

³ The Water Fowl of India and Asia by Frank Finn, B. A. (Oxon), F. Z. S., M. B. O. U., Late Deputy Superintendent of the Indian Museum, Author of "Garden and Aviary Birds of India," . . . 4 lines of titles of author's previous works | — | Calcutta: Thacker, Spink & Co. | — | 1909 — 12mo, pp. ix + 121, and 11 half-tone plates of heads. Price, Rs. 2-8.

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CORRESPONDENCE.

'Concealing Coloration.'

EDITORS OF 'THE AUK,'

Dear Sirs: — In your most gratifying review of our book, 'Concealing Coloration,' there is only one thing that I could care to amend, and that is the share in the authorship allotted to my son Gerald H. Thayer.

Being more indebted to him for writing this book than I can ever repay, and he being a professional writer, I owe it to him to make it clearly understood that while with only secondary exceptions the book's *material* is mine, yet the whole book *as a book* — its scheme and every sentence in it (except, of course, the passages signed by me, which owe much to his revision) — is entirely his. But for him I could not only never have found time and energy to produce any book at all, but could not in any literary sense have at all equalled this one.

Sincerely yours,

ABBOTT H. THAYER.

Monadnock, N. H.,
May 20, 1910.

NOTES AND NEWS.

ALEXANDER O'DRISCOLL TAYLOR, an Associate of the American Ornithologists' Union since 1888, died at his home in Newport, Rhode Island, on April 10, 1910, in the seventy-ninth year of his age, after a short illness from pneumonia. He was born in Cork, Ireland, January 2, 1832, and came to this country in 1883. He soon after became disbursing agent of the survey for the Northern Pacific Railroad, and later was connected for a time with the United States Geological Survey. He engaged in the real estate business in Newport in 1885, and for twenty-five years was active in the business, municipal, and educational interests of the city of his adoption. He was deeply interested in natural history, being a well-informed amateur in various lines, especially in ornithology. He took a very active part in the work of the Newport Natural History Society, of which he was curator in 1885-1887, secretary in 1888, and president from 1889 till his decease. He was also the head of the Rhode Island Game Commission, a devoted champion of bird protection, and did much to popularize the study of natural history. He is survived by two sons and a daughter.

THE next Stated Meeting of the American Ornithologists' Union will be held in Washington, D. C., beginning Monday, November 14, 1910, this being the date selected by the Local Committee, to whom the matter was referred by the Union.

THE new edition of the American Ornithologists' Union Check-List of North American Birds, which has been some four years in preparation, will probably be ready for distribution about the end of July. It will differ in several respects from the previous editions, both typographically and in the character of the matter. The arrangement and numeration, however, will be the same. The changes in nomenclature have already been announced in the various supplements that have been issued since the publication of the second edition in 1895, so that in this respect there will be few surprises. The 'ranges,' or the matter relating to the geographical distribution of the species and subspecies, have, however, been entirely rewritten and greatly amplified, thus fully reflecting the latest knowledge of the subject. Besides being given in greater detail and with more definiteness, they are arranged to show not only the general range of the forms, but also the breeding and winter ranges, so far as these are at present known. We hence feel sure that the vast amount of work expended in the preparation of this new edition will be greatly appreciated by future users of the Check-List, of which a more detailed analysis, and comparison with previous editions, will be given later.

An abbreviated edition of the Check-List, consisting only of the English and technical names, numbered in accordance with the numeration of the previous editions of the Check-List, is in preparation and will be issued at about the same time as the regular edition. It will be of small size, with rounded corners and flexible covers, and thus handy for the pocket, and be printed on only one side of the leaf, thereby providing convenient space for annotations.

READERS of 'The Auk' will be interested to learn that through the liberality of Mrs. E. H. Harriman an endowment has been established to provide Dr. C. Hart Merriam with a liberal income and a fund for general expenses to enable him hereafter to devote his time entirely to scientific work untrammelled by official routine. Doctor Merriam has long had in contemplation the preparation of a work on the mammals of North America, the completion of which has been delayed by pressure of official work. The establishment of this endowment makes it certain that the appearance of the first volumes of the series will not be long delayed. The resignation of Doctor Merriam as Chief of the Biological Survey took effect June 1, and Mr. H. W. Henshaw has been appointed his successor, with Dr. T. S. Palmer as Assistant Chief.

In order that the fruits of Doctor Merriam's experience and long field work may not be wholly lost to the Department, which he has served for

25 years, Doctor Merriam will still retain an official connection with the Survey under the title of Consulting Biologist.

We have the assurance that under the new regime the work of the Biological Survey will be conducted along practically the same lines as in the past.

MR. WILLIAM DUTCHER, President of the National Association of Audubon Societies, sailed on May 17 for Europe, to attend the Fifth International Ornithological Congress held in Berlin May 30 to June 4. It was his purpose to present to the Bird Protection section of the Congress a plan for an international organization for the conservation of wild bird and animal life. Mr. Dutcher was also the accredited representative of the United States Government, the Smithsonian Institution, the U. S. National Museum, and the American Ornithologists' Union to the Congress, and empowered by the latter to extend a cordial invitation to the Congress to hold its next session (in 1915) in Washington. It was decided, however, we are informed, to hold it at Serajevo, in Bosnia.

IN OUR reference to the Smithsonian Expedition to East Africa in a former issue of this journal (April, 1909, p. 220), it was said that under such a leader as Colonel Roosevelt, and with the support of such an able staff as Dr. Mearns, and Messrs. Heller and Loring, and barring accident and illness, "the results of the year's work in British East Africa . . . should be of the greatest scientific importance and bring to this country a greatly needed collection of the leading forms of the vertebrate life of a region at present poorly represented in American Museums." In recording the safe return of all the members of the party, it is gratifying to know that the most optimistic anticipations of success have been more than realized, as shown by Mr. Roosevelt's summary of results communicated to the Secretary of the Smithsonian Institution and published in the 'National Geographic Magazine' for April, 1910 (pp. 364, 369, 370). The expedition landed at Mombasa on April 21, 1909, and reached Khartoum on March 14, 1910, none of the party having experienced serious illness during their long period of tropical field work. Eight months were spent in British East Africa, the collections having been made principally on the Athi and Kapiti plains, in the Sotik, and around Lake Naivasha. Also, to quote from the report: "Messrs. Mearns and Loring made a thorough biological survey of Mount Kenia, while the rest of the party skirted its western base, went to and up the Guaso Nyero, and later visited the Uasin Geisha region and both sides of the Rift Valley. Messrs. Kermit Roosevelt and Tarlton went to the Lailsipia and Lake Harrington, and Dr. Mearns and Mr. Kermit Roosevelt made separate trips to the coast region near Mombasa." On the way down the White Nile over three weeks were spent in the Lado, and collections were also made on the Bahr el Ghazal and Bar el Zeraf. Important aid was courteously extended throughout the journey by the British and Belgian officers of the countries traversed.

During the trip "Mr. Heller has prepared 1,020 specimens of mammals, the majority of large size; Mr. Loring has prepared 3,163, and Dr. Mearns 714 — a total of 4,897 mammals. Of birds, Dr. Mearns has prepared nearly 3,100, Mr. Loring 899, and Mr. Heller about 50 — a total of about 4,000 birds. Of reptiles and batrachians, Messrs. Mearns, Loring, and Heller collected about 2,000. Of fishes, about 500 were collected. Dr. Mearns collected marine fishes near Mombasa, and fresh-water fishes elsewhere in British East Africa, and he and Cuninghame collected fishes in the White Nile." This makes a total of about 11,400 vertebrates, probably greatly exceeding the number ever taken by any expedition in the same length of time in any country. Besides this, Dr. Mearns collected several thousand plants, and, with assistance from other members of the party, considerable anthropological material and many insects, mollusks and other invertebrates.

All of these vast collections have safely reached the U. S. National Museum in Washington, where specialists are already at work upon them. It is understood that Mr. Heller will prepare the report on the mammals, and Dr. Mearns the report on the birds.

A NEW quarterly ornithological magazine, printed in the Russian language, but which may be designated in English as the 'Ornithological Messenger,' has made its appearance at Moscow, Russia, under the editorial direction of G. I. Poliakov (address: Russia, Moscow, Leontiewsky, No. 17, 5. Annual subscription, 2.50 Rbl.). The first two numbers (1910) contain articles by such well known authorities on Russian birds as S. A. Buturlin, P. P. Susehkin, S. N. Alpheraky, N. A. Sarundy, and others, there being descriptions of several new species, a continued paper on the birds of the eastern part of the Azov Sea (by Alpheraky), a revision of the Nightingales of the genus *Philomela* Link (by Buturlin, with a summary in English), and reviews of current ornithological literature.

THE early appearance of Mr. M. A. Carriker's work on the Birds of Costa Rica, left by him in manuscript, on his departure last summer for South America, for publication by the Carnegie Museum of Pittsburgh, is now assured, the matter being in type and ready for printing.

A NEW work, soon to appear in twelve sections, is announced by T. C. and E. C. Jack, of London and Edinburgh, entitled "The British Bird Book, an account of the birds, nests and eggs found in the British Isles," under the editorship of F. B. Kirkman, with "200 plates in color and many in monochrome." The authors include a number of well known authorities on British birds, and among the artists are H. Grönvold, A. W. Seaby, and G. E. Lodge, while photographs will also be freely used in illustration. With the profusion of books on British birds, it would seem that the field is already well covered, but there appears to be still room for another if of the exhaustive character here promised. One of the principal objects in

view is a detailed consideration of the *habits* of the species, and in making clear how little is really known in this respect, to "point the way to further research." The subscription price is 10s. 6d. net per section, with also an edition de luxe at 21s. per section; the London address of the publishers is 16 Henrietta Street, W. C.

ANOTHER work on British birds is also announced by Witherby and Co., the well-known natural history publishers of London. This belongs to the series of county histories, and is entitled 'The Birds of Dumfriesshire,' by Hugh S. Gladstone, "with twenty-four full-page plates from photographs of typical haunts and notable birds," and a contour map of the county in colors, showing altitude. This will be a volume in demy 8vo of about 600 pages. The edition will be limited to 350 numbered copies, and the subscription price is £1 1s. net. The work promises to be fairly exhaustive in point of treatment, and a valuable addition to the list of county avifaunas.

THE New York plumage bill, known as the 'Shea-White Plumage Bill,' passed the legislature of this State at its last session and was signed by Governor Hughes on May 7, 1910. The long-fought contest, waged for four years, by the Audubon Societies and friends of bird protection against the millinery interests of New York City has thus finally resulted in a victory for bird protection, and the precedent thus established we trust will be followed by other States. Some of the special provisions thus enacted are: "No part of the plumage, skin or body of any bird protected by this section [Sec. 98], or of any birds coming from without the State, whether belonging to the same or a different species from that native to the State of New York, provided such birds belong to the same family as those protected by this chapter, shall be sold or had in possession for sale. . . . Plumage includes any part of the feathers, head, wings or tail of any bird, and wherever the word occurs in this chapter reference is had equally to plumage of birds coming from without the State, but it shall not be construed to apply to the feathers of birds of paradise, ostriches, domestic fowl or domestic pigeons. This act shall take effect July 1, 1911."

By this act, therefore, aigrettes cannot be legally sold in the State of New York after it becomes operative. The deferred date of its operation is perhaps a reasonable concession to the milliners to enable them to dispose of their present stock without serious loss.

The act thus protects not only egrets and other plume-bearing herons, but gulls, terns, albatrosses, eagles, vultures, and other birds slaughtered for their wings or quills, as well as all song and insectivorous birds.

The passage of the bill is the crowning reward of the persistent and widespread campaign of education conducted by the associated Audubon Societies under the direction of the President of the National Association and his immediate official staff.

It is announced that Mrs. Russell Sage has contributed the sum of \$15,000 to the National Association of Audubon Societies, to be expended during the next three years for bird protection, preferably in the Southern States. The fund is otherwise unrestricted and the first annual installment of \$5,000 is already available.

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1910, cloth 8vo, pp. 400+. \$2.50.

Code of Nomenclature. 1892. Paper, 8vo, pp. iv+72. 25 cents.

Code of Nomenclature. Revised edition, 1908. Paper, 8vo,
pp. lxxxv. 50 cents.

Index to The Auk (Vols. I-XVII, 1884-1900) and Bulletin Nuttall
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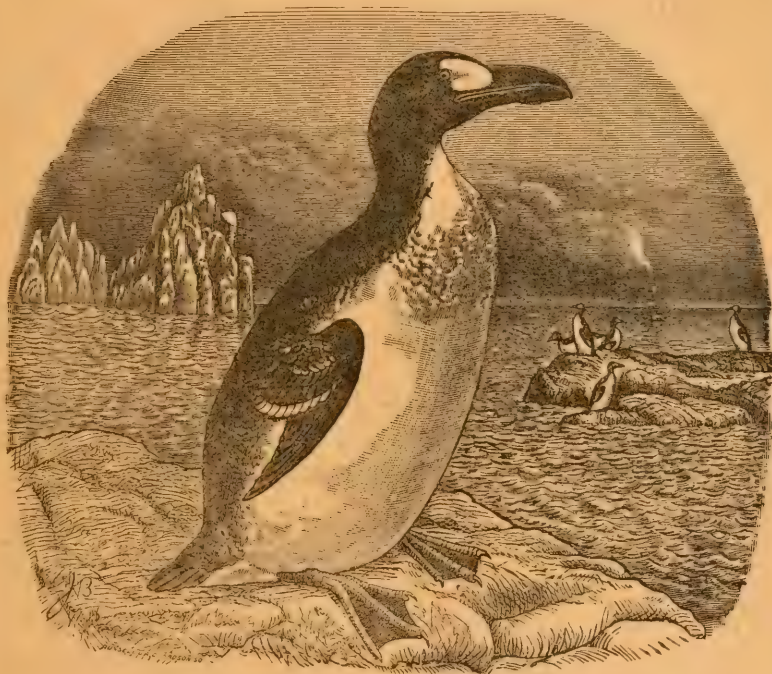
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THE AUK,' published quarterly as the Organ of the AMERICAN ORNITHOLOGISTS' UNION, is edited by Dr. J. A. ALLEN, with the assistance of Mr. FRANK M. CHAPMAN.

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All articles and communications intended for publication and all books and publications for notice, should be sent to Dr. J. A. ALLEN, AMERICAN MUSEUM OF NATURAL HISTORY, 77TH ST. AND CENTRAL PARK, WEST, NEW YORK CITY.

Manuscripts for general articles should reach the editor at least six weeks before the date of the number for which they are intended, and manuscripts for 'General Notes' and 'Recent Literature' not later than the first of the month preceding the date of the number in which it is desired they shall appear.

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VOL. XXVII.

OCTOBER, 1910.

No. 4.

THE CANVAS-BACK IN MASSACHUSETTS.

BY S. PRESCOTT FAY.

UNTIL recent years during the fall migrations of ducks along the coast of Massachusetts the Canvas-back (*Marila valisineria*) has always been conspicuous by its absence, and in spite of the numerous "gunning stands" on many of our larger ponds comparatively few of these ducks seem to have been killed. At most places they are looked upon as rare stragglers, and because of their market value it is with a sense of great satisfaction that one of these ducks is taken. Owing to its infrequent occurrence up till five years ago doubtless most of the specimens seen or killed were reported, with the exception of course of a small percentage it is reasonable to suppose escaped notice; but lately this has not been the case. In one locality especially where I find the Canvas-back has become reasonably plentiful a great many have been killed and more seen that have not been publicly recorded. Of this very little seems to be known. Recently I have been interested in these records for the State and have found such as above described to be the case on Martha's Vineyard island. The reason for this state of affairs seems to be due to the fact that these ducks have been killed by what we may call "gunners,"—that is, men who shoot for the mere sport of shooting, with no ornithological interest. The last year or so I believe one or two ornithologists have not been so careful in recording all occurrences, because they felt it is not the rarity it used to be. This applies, however,

only to a few cases, chiefly for Plymouth County, but as for the state of affairs on Martha's Vineyard that is a very different matter, involving as it does a large number of records. Because this seems to be scarcely known it will be well worth while to look into it very carefully.

In gathering these records together it is very evident that the status of this species is changing and is very different from what it was a number of years ago, or even ten years ago, for this decided change has all come within the last decade. Until then it was considered a very rare straggler to our coast; in fact, five years ago it was generally considered so, and if I am not mistaken there are some who still believe it to be the case. On investigation a great many recent records came to light, and by putting these down in yearly sequence we can see how this species has increased recently to such an extent, I think, that it can hardly be called a rare duck in our State any longer. However, before going any further it will be well to consider the specimens in our Museums, and see what conclusions we can draw from that source.

In the collection of the Boston Society of Natural History there are but four specimens, as follows:

1. No date; immature male. Dr. Samuel Cabot, Jr., Newburyport.
2. No date; female. Dr. Samuel Cabot, Jr., Newburyport.
(Though no date accompanies these, they were presented by Dr. Cabot, according to the records, in 1845 or 1846.)
3. Nov. 10, 1908; female. Dwight Blaney, Eastham.
4. Dec. 18, 1908; immature male. " "

In the collection of the Peabody Academy of Science, Salem, there are two specimens, both males, taken at Ipswich in 1905.

There are no specimens from the State in the Museum of Comparative Zoölogy, Cambridge, nor in Mr. John E. Thayer's Museum at Lancaster.

Of these six specimens four have been taken within the last five years. This then certainly points to the fact that until recently they were so rare that very few were killed. These conclusions are further upheld by the opinions of all the leading ornithologists, for they have agreed upon the rarity of this species in Massachusetts, certainly up to within the last few years.

E. A. Samuels, in his 'Ornithology and Oology of New England,' published in 1867, says: "The Canvas-back is rarely taken in New England. I have seen a few that were killed in Ponkapoag Pond, Canton, Massachusetts." J. A. Allen speaks of its being "occasionally found at the western part of the state."

The earliest mention was made in 1832 by Thomas Nuttall in his 'Ornithology of the United States and Canada,' where he says: "In the depth of winter a few pairs, probably driven from the interior by cold, arrive in Massachusetts Bay in the vicinity of Cohasset and near Martha's Vineyard; these, as in the waters of New York, are commonly associated with the Redhead or Po-chard to which they have so near an affinity."

Neither Wilson nor Audubon commented on the Canvas-back in Massachusetts or even New England. J. A. Allen, in 'Birds of Massachusetts,' in 1878, states that it is a "very rare autumn and spring migrant." In 1895, F. M. Chapman, in his 'Hand-book of Birds of Eastern North America,' considers it "rare on the Atlantic Coast north of Delaware," and Messrs. Howe and Allen, in 1901, in their 'Birds of Massachusetts,' say it is "a very rare autumn migrant on the coast," mentioning about ten places where it has been reported. Dr. C. W. Townsend, in 'Birds of Essex County,' 1905, calls it a "very rare transient visitor" and gives but four records. Since the publication of his book there have been ten more killed on five different occasions, making more records for the last five years than there were for the entire period previous to 1905.

Wells W. Cooke, in 1906, in Bulletin Number 26 of the Biological Survey, entitled 'Distribution and Migration of North American Ducks, Geese and Swans,' says "it is hardly more than a straggler in Massachusetts." Also, in the same year, William Brewster, in his 'Birds of the Cambridge Region of Massachusetts,' puts the Canvas-back in the list of occasional or accidental visitors, considering it "of very rare occurrence during migration." He further says, "It is not surprising that the species is and apparently always has been but little more than a chance straggler to New England." This exactly describes the situation up to the time of the publication of his book. For this region he is able to give but three records, and although since then there have been no

recent occurrences strictly within the Cambridge region, just outside at Spot Pond, Middlesex Fells, Jamaica Pond and the Chestnut Hill Reservoir we have four records comprising six birds, all observed by reliable ornithologists.

The most recent list of Massachusetts birds is that published in 1909, in the 'Occasional Papers of the Boston Society of Natural History,' by Glover M. Allen, entitled 'List of Aves of New England.' Here the Canvas-back is considered a "rare migrant," so that nearly up to the present time it was still looked upon as a rare species.

Below is a table of all the records I have been able to find, arranged chronologically, so that by comparing them in yearly sequence the marked increase of these ducks during the fall migration can be seen.

Massachusetts Records.

(N. B. All records given refer to specimens *taken* unless otherwise specified. The names given are the names of those who either shot the ducks or saw them, or on whose authority the record exists.)

Previous to 1845.

Date unknown. Capt. N. J. Wyeth.¹ Fresh Pond, Cambridge.

1845-6.

Two, male and female, Dr. S. Cabot, Jr.,² Newburyport.

1885.

Fall. One, Herbert K. Job,³ Billington Sea, Plymouth.

1895.

Nov. 6. One (young bird), C. J. Paine, Jr.,⁴ Wayland.

1896.

Nov. 26. Male seen, J. E. Bassett,⁵ Nippenickett Pond, Bridgewater.

Dec. 4. Two, Philip Jackson, West Pond, Plymouth.

Dec. 18. Four, 2 males, 2 females, Thomas Arnold,⁶ Silver Lake, Halifax.

1899.

Nov. Five, H. A. Bradford, Russell's Mill Pond, Plymouth.

¹ Proceedings of the Boston Society of Natural History, Vol. II, 1846, 89.

² *Ibid.*

³ Auk, Vol. XIII, p. 201.

⁴ Albert Pitts Morse, Birds of Wellesley and Vicinity, p. 12.

⁵ H. K. Job, Auk, Vol. XIV, p. 206.

⁶ *Ibid.*

1900-5.

One, B. I. Quinby,¹ Topsfield Marshes.

1900.

Dec. 23. One shot, three seen, G. M. Allen, Truro.

1901.

Nov. 3. Three seen, one shot, F. B. McKechnie, Ponkapoag Pond.

1902.

Nov. 13. One (first one shot and second seen there), Dr. J. C. Phillips, Wenham Lake, North Beverly.

1903.

Nov. 18-30. Female (seen), Dr. Harold Bowditch,² Wm. Brewster and others, Fresh Pond, Cambridge.

Oct. 29. Eight seen, five shot, A. C. Bent, Halifax.

1904.

Fall. Three, M. Luce, Eastham.

Fall. Eleven, and nine (next day), J. E. Look, Great Pond, Edgartown.

1905.

Two males, in Museum of Peabody Academy of Science, Salem, Ipswich.

Oct. 6. One, J. H. Hardy, Jr., Newburyport.

Nov. 19. One, A. C. Bent, Lakeville.

Nov. 22. Four, A. C. Bent (West Side Gunning Club), Billington Sea, Plymouth.

Dec. 9. Male, female, S. P. Fay, Great Pond, Edgartown.

Dec. 23-31. Male (seen), Walter Deane³ and Rev. H. W. Wright, Fresh Pond, Cambridge.

1906.

Jan. 1-8. Male (seen, same bird as above), Rev. H. W. Wright⁴ Fresh Pond, Cambridge.

Nov. 1. Female, J. L. Motley, Sesachacha Pond, Nantucket.

Nov. 4. Five, Dr. J. C. Phillips, Wenham Lake, North Beverly.

Nov. 10. Three males (seen), Rev. H. W. Wright, Spot Pond, Middlesex Fells.

1907.

Oct. 19. Thirteen seen, six shot, immature males or females, A. C. Dyke⁵ Nippenickett Pond, Bridgewater.

Oct. 27-Nov. 3. Nine, F. B. McKechnie, Ponkapoag Pond.

1908.

Nov. 10. Female (one more seen), Dwight Blaney, Eastham.

Nov. 17. Male (5 more in flock), S. P. Fay and W. R. Baldwin, Great Pond, Edgartown.

¹ C. W. Townsend, *Birds of Essex County*, p. 135.

² William Brewster, *Birds of the Cambridge Region*, p. 115.

³ *Ibid.*

⁴ *Ibid.*

⁵ *Auk*, Vol. XXV, p. 80.

Dec. 18. Immature male, Dwight Blaney, Eastham.

Fall. One, H. A. Bradford, Plymouth.

Fall. Several small flocks, the largest containing 12-14 ducks, Allan Keniston, Great Pond, Edgartown.

Fall. Eight, Allan Keniston, Edgartown.

Fall. Twelve (total number shot on his place; the 8 above, all or part, may be included in this 12). Geo. D. Flynn, Edgartown.

March 9, 10, 12. Male seen, Rev. H. W. Wright, Chestnut Hill Reservoir, Brookline.

Total number killed on Great Pond, during fall, estimated between 25-30 ducks, Walter H. Renear, Vineyard Haven.

Oct. 31. Seven, J. H. Hardy, Jr., Hingham.

Nov. 2. One male, Rev. H. W. Wright, Spot Pond, Middlesex Fells.

Dec. 18. Five, J. H. Hardy, Jr., Plymouth.

Dec. 30. One male (seen) J. L. Peters, Edgartown.

Nov. 1-8. Flock of 15 decoyed, seven shot, only five retrieved, Cleon Crowell, Long Pond, Harwich.

Two shot (flock of 75 lit in pond, stayed about an hour, then left), Linwood Nickerson, Harwich.

1909.

March 21. Male, J. L. Peters and Rev. H. W. Wright, Chestnut Hill Reservoir, Brookline.

Fall. Two (seen), Dwight Blaney, Eastham.

Fall. Six, H. A. Bradford, Big Sandy Pond, Plymouth.

Fall. One, Ellery H. Clarke, off Cohasset.

Nov. 3. Two, Dr. J. C. Phillips, Wenham Lake, North Beverly.

Nov. 25. Twelve (seen), F. B. McKechnie, Ponkapoag Pond.

Dec. 1909, Jan., Feb., March, 1910. Full plumaged male, seen continuously from Dec. 12 until March 27, 1910, when it disappeared, Leverett Pond and Jamaica Pond, Brookline.

Fall. Twelve seen in one flock, Thomas Arnold,¹ Silver Lake, Halifax.

1909.

Oct. 25-31. Twenty-five went through express office, W. Nichols, Edgartown.

Fall. Four, Allan Keniston, Great Pond, Edgartown.

Fall. Three, J. E. Look, Great Pond, Edgartown.

Fall. Fifteen-eighteen (total number shot on his place by several parties during fall), Geo. D. Flynn, Great Pond, Edgartown.

(As I have no dates for these last three entries it is possible some of these ducks may have been shot during the last week of October and so

¹ Though none were killed at Silver Lake in 1909, during the few years previous a few were taken, but I was unable to get any complete data. In fact, all through Plymouth County I hear of there being Canvas-backs killed, but it is impossible to find out anything definite or obtain satisfactory evidence.

included in the lot of twenty-five that went through the express office between October 25 and 31.)

Nov. 1. Seven seen, one shot, Allan Keniston, Great Pond, Edgartown.

Fall. Caught male alive, still in possession, Allan Keniston, Great Pond, Edgartown.

Nov. 1-7. Four, W. Nichols, Great Pond, Edgartown.

Nov. 1-7. Six, Chester Pease, Great Pond, Edgartown.

Nov. Three, Kapawac Club, Great Pond, Edgartown.

Nov. 19. Two males, two females (six shot from flock of 50, of which two were not retrieved), W. R. Baldwin, Great Pond, Edgartown.

Nov. 19. Large flock of 50 seen, close to beach, W. R. Baldwin, Great Pond, Edgartown.

Nov. 19. Thirty seen in one flock, Allan Keniston, Great Pond, Edgartown.

Dec. 13. One hundred and fifty seen in one flock, W. Nichols, Great Pond, Edgartown.

Dec. 16. Four (fifty seen in one flock), J. E. Look, Great Pond, Edgartown.

Fall. About twenty-five killed in Watcha Pond, E. F. Adams, Edgartown.

Fall. About 50 (estimated) killed in Great Pond, Edgartown, Walter H. Renear.

Fall. Knows personally of 35-40 killed in Great Pond, Edgartown, Allan Keniston.

N. B. Perhaps some will doubt the correctness of these records, since the majority from Martha's Vineyard are from local gunners, on the ground that they may have confused Canvas-backs with Redheads or some other ducks. In the first place, I have been very careful as to whom I have consulted, choosing only those whom I know personally and whose knowledge of the varieties of ducks is unquestioned. In the second place, there is no pond in Massachusetts, or possibly in New England, where there is the number or variety of ducks found here; hence the local sportsmen are remarkably well posted on the different species. It is not the same here as in most places on Cape Cod, where the natives probably know only two or three kinds of ducks. Even the young boys, who perhaps own but a single-barreled gun, and shoot only a short time in the morning before school begins, know not only the distinguishing marks of the ducks close to, but can readily distinguish them on the wing. I doubt if there are many places in the State where such a condition exists.

Summing up from the above table of Martha's Vineyard for 1909, we find that even leaving out of consideration the twenty-five ducks that passed through the express office the last week of October, there were nearly fifty ducks killed on Great Pond, Edgartown,—which is about the number estimated by the gun-

ners. That seems a fair estimate, for it is reasonable to assume that there were other Canvas-backs killed of which there is no record. The only other pond where these ducks are taken on this island is Watcha (or Fresh Pond, as it is sometimes called), and though I could get no definite dates, Mr. E. F. Adams, one of the local gunners, who follows the duck shooting closely during the fall, estimates that there were fully twenty-five Canvas-backs killed there in 1909. That makes a total of approximately seventy-five Canvas-backs killed on the island for the fall of that year. Taking into consideration also the large number seen, it only shows more conclusively that the Canvas-back is increasing in this State where the conditions are suitable. If it were only possible to get all the records for Martha's Vineyard for the last five years we would have a set of records that would be extremely interesting, and it would then be easier to trace back and see precisely how much these ducks have increased the last few years. The year 1909 certainly was a banner year, and undoubtedly the greatest flight of Canvas-backs took place in Massachusetts that to our knowledge has ever occurred. However, we cannot, I think, look upon it as anything so extraordinary, because this duck has increased so steadily since 1905. In fact, it is only reasonable to expect such an occurrence. 1910 may not show another such flight, but undoubtedly there will be a great many of these ducks killed. Though by far the greatest number in 1909 were taken on Martha's Vineyard, the rest of the records are so evenly distributed over the coast of Massachusetts that every county bordering on the ocean came in for its share. This shows that the flight was general and not limited to any locality, and that wherever the feed and conditions were suitable Canvas-backs appeared.

From this table as a whole we see very plainly how these ducks have increased the last few years, beginning with 1905. That seems to be the time when the marked change became perceptible. No doubt because of a more general interest in ornithology lately, more records of our uncommon birds are noted than previously, and that may account somewhat for the records being more complete recently. On the other hand, I was informed by one man that he had not taken pains to note all recent occurrences, as he

did not consider this species as rare as it used to be. This then suggests that there are some recent records of the last year or two that are lacking.

The most interesting side of this situation seems to be the fact that so many are killed on the Island of Martha's Vineyard. With all our large ponds scattered over the State, particularly in Barnstable, Duke and Plymouth Counties, the question naturally arises as to why so many should be taken in this one locality. Many apparently suitable ponds do not seem to attract the ducks at all. On the south side of the island there is a continuous string of ponds, stretching from the extreme eastern end close to the western end. Often they are so close that only a very narrow neck of land separates one from the other. Some of the ponds are open to the sea by a small creek, making them very salt, others are opened only in the spring for a short time to let the herring run in to spawn, making them brackish, while there are some which are entirely fresh. Practically all of the Canvas-backs (at least so far as can be judged from the records) are taken in but two ponds, and these two are entirely fresh. Local gunners tell me that they are taken in no other places, although there are other fresh water ponds than these two. In spite of the fact that the island of Nantucket, only fifteen miles away, has a similar string of ponds on the south side, though not quite as numerous or as large, there is but one definite record for the island. Of course there is only one reason,—that which accounts for the appearance of ducks anywhere — namely, feed, for these two ponds are filled with wild celery (*Valisneria americana*), to say nothing of other good duck grasses. This I was told to be the case several years ago, and although I examined the celery and saw it growing on the bottom in many places, not knowing the plant, I was unable to identify it. However, in August, 1909, the Biological Survey in Washington sent their Assistant Biologist, Mr. W. L. McAtee, to examine Edgartown Great Pond, which is one of the two where the ducks are killed, and to report on the various kinds of feed found growing there. In replying to a letter enquiring as to the results of his investigation, he says: "As you mentioned that you would be interested to hear the result of my examination of Edgartown pond, I take the present opportunity of addressing you. Taking

a boat near the pumping station we went through a long lead, which is filled with a pond weed (*Potamogeton nuttalli*) which is a fair duck food. We then entered a cove and followed it up around the first point to the right and into the next cove. I found the bottom of these coves carpeted with wild celery and a species of pond weed (*Potamogeton perfoliatus*), known as redhead or duck grass. There were no other important plants. I was very much interested in finding wild celery there, as I had heard that pond is the best in the State for Redheads and Canvas-backs. . . ."

This letter is not only interesting but conclusive as to the reason for the abundance of the ducks in this pond, for everyone knows the attraction wild celery has for Canvas-backs. What I have been unable to solve is how and when the celery took root there. For although I have asked and written a number of local gunners no one seems to know whether it was planted there artificially or not. The theory often advanced that ducks spread the growth of aquatic plants by carrying the small seeds in particles of mud adhering to their feet and legs might possibly account for it.

Though this plant explains why the Canvas-backs frequent certain ponds in preference to others, it does not give the reason for their increase in numbers in this State. In the first place, this wild celery has undoubtedly been in the pond a great many years, for the gunners do not speak of its being a new growth, so that does not explain their recent increase. When I first went down there in the fall of 1905 I saw it growing then, though I was not sure it was the true *Valisneria americana* until I saw Mr. McAtee's letter several years later. Furthermore, Edgartown Great Pond has, as far as the memory of the old gunners go, always been a great resort for ducks, especially Greater Scaups and Redheads. These two, in this order, are the commonest ducks, and to-day at the height of the season in November there are six to eight thousand bedded in the centre of the pond. And although the old gunners say there were many more in years past, I am rather inclined to doubt their statements, for the beds of ducks to-day far surpass those of any other place in this State, if not in New England. Therefore it does not seem reasonable to suppose that even when there was less shooting than there is at present the ducks were any more numerous.

With this big increase in the flight of Canvas-backs during the fall migration it will be interesting to look for the cause, for there must be some fundamental reason. Undoubtedly the best place to begin investigations is on their breeding grounds, and from there follow them on their fall migration to their winter feeding grounds in order to see not only what are the general routes taken, but also how and why the North Atlantic coast is reached.

As we all know, they breed in the west central interior of Canada, principally in the region lying east of the Rocky Mountains, ranging as far as the 100th meridian. Of course their breeding grounds cover more territory than this, but the center of abundance seems to lie within this area. From here they start on their south, southeastern and eastern migrations in early fall, and in general two main routes seem to be taken; one, south, spreading out on crossing over into the United States and splitting into two routes — the first, due south across country to Texas and Mexico, the second, down the Missouri and Mississippi valleys to Louisiana and Texas. The second main course is easterly following the border between this country and Canada and across the Great Lakes. This is the only one that interests us, for it is by this route that it reaches the North Atlantic coast and Massachusetts.

Early in October the flocks begin crossing Lake Erie, and here the easterly course of this main body seems to terminate, for they now take a more southerly direction, by which they reach the region about Chesapeake Bay and the sounds further south on the coast of North Carolina. However, some birds seem to continue this easterly course, coming directly across the northern part of Massachusetts. Because most of the birds are killed south of Boston it may be that the flight, after all, strikes the coast at this point. Still, I think not, for recent records north of Boston show there has been a flight there as well. On reaching the coast at this point they then turn south, stopping off at suitable feeding grounds, and because they are better and larger in the ponds of Martha's Vineyard the majority settle there, attracted further by the large beds of Scaups and Redheads. A less probable theory would be, that, crossing New York State (which they do, for some are taken and seen regularly in the larger lakes such as Cayuga) they strike Long Island Sound and reach Massachusetts from

that direction. One man informed me that while shooting on Martha's Vineyard he had seen several flocks come from the westward in the direction of Long Island Sound. However, it is impossible to tell whether these were migrating ducks or whether they were merely returning to the pond which they had left at sunset the previous evening,—the usual habit of most of the ducks there. Furthermore, this theory seems improbable for Dr. W. C. Braislin¹ in 1904 considered them "sufficiently rare on Long Island as to be worthy of record." Whether they have increased since then or not I do not know.

Now that the possible routes have been taken up the last consideration is the cause for any change in the course of migration. One reason may be that, because the Redheads and Canvas-backs breed in more or less the same territory and that the former have been very common on Martha's Vineyard for a good many years, some may follow the route taken by the Redheads to the Massachusetts coast. Also, as the Mississippi Valley becomes more and more settled, fewer may take that course, and as the sloughs near their breeding grounds on the prairies are drained to make way for the wheat fields, they may be forced further and further north each year to breed and so take a more easterly direction. Lastly, it may be due to the fact that they have been so persecuted by sportsmen and market hunters on the Chesapeake Bay and North Carolina sounds in years past. This may be a partial explanation for their striking the Atlantic coast so far north.

However, the fact remains that their numbers are increasing rapidly in Massachusetts. Five years ago they were considered on Martha's Vineyard, as elsewhere, as very rare. That year I killed a pair, and it was of sufficient interest to be commented on in the local paper. Now very little thought is given to these ducks being shot. In talking with the gunners on the island the opinion as to its increasing numbers is general, and they are as unanimous in maintaining that it is getting to be quite common now as they are of the fact of its rarity five or six years ago. Certainly, with this abundance of recent records, I hardly think the Canvas-back can be looked upon any longer as a 'rare species'

¹ Auk, Vol. XXI, p. 288.

in this State. It at least deserves to be called 'locally common,' or else considered as 'increasing in abundance.' The developments as regards this situation for the next few years will undoubtedly be of great interest.¹

NOTES ON THE BIRDS OF THE SUNKEN LANDS OF SOUTHEASTERN MISSOURI.

BY ARTHUR H. HOWELL.

THE field work of the Biological Survey for the season of 1909 included a collecting trip in the 'Sunken Lands' and swampy river bottoms of southeastern Missouri — a region famous for the vast numbers of waterfowl which stop there on their migratory flights, and interesting also as the summer home of several rare birds, notably Bachman's and Swainson's Warblers.

The characteristics of this region have been described in several articles by Mr. O. Widmann.² It is perhaps sufficient to note here that the lakes and swampy areas, which cover a large part of seven counties in Missouri and portions of Tennessee, Kentucky, and Arkansas, were formed by a subsidence of the land following a series of earthquakes in 1811-1812. Evidences of this subsidence are still seen in the presence in some of the lakes of dead stubs of old cypresses standing in deep water far from the present shore line. This swampy region forms a northward extension of the Lower Austral Zone, and for that reason a study of its

¹ Not only are Canvas-backs becoming more numerous, but Greater Scaups and Redheads have also noticeably increased lately. They are now seen and shot in some ponds on Cape Cod and in Plymouth County, which they never frequented before; and in some localities, where they formerly were met with only occasionally, they are now becoming quite common, so that their arrival during the fall migrations can be depended upon with a reasonable degree of certainty. This flight, or rather change in the migratory route, seems to include these three varieties of ducks. The question is whether this condition is only temporary or whether it is to be permanent.

² Auk, XII, 1895, pp. 350-355; XIV, 1897, pp. 305-309; 'Birds of Missouri.' Trans. Acad. Sci. of St. Louis, XVII, No. 1, 1907, pp. 14-16.

breeding birds is of special importance in order that the northern limits of such forms as occur in that Zone may be determined.

The localities visited in Missouri are as follows: St. Francis River, about 12 miles north of Cardwell, Dunklin County (April 25-30); Kennett (May 1, 2); Portageville (May 3, 4); Cushion Lake, 7 miles southeast of Portageville (May 4-7).

The following list includes only the rarer birds, and those whose subspecific identity has been a matter of conjecture.

Podilymbus podiceps. PIED-BILLED GREBE.—Three or four were seen in the wooded swamps along the St. Francis River and one on Cushion Lake.

Anhinga anhinga. SNAKEBIRD.—One was seen on Cushion Lake.

Anas platyrhynchos. MALLARD.—A few Mallards are reported to breed in the more inaccessible portions of Cushion Lake.

Aix sponsa. WOOD DUCK.—Wood Ducks are probably more numerous in this region than in any other part of the United States, and this in spite of the fact that many thousands are shot every fall and winter. At the time of my visit they were breeding and comparatively few were seen. I did, however, see from one to six each day that I was in the swamps. They are very wary and fly swiftly up and down the bayous, mainly in pairs, uttering their characteristic call notes. Several times a pair was flushed from the water in the timbered 'sloughs' where they were feeding.

Branta canadensis. CANADA GOOSE.—A few geese are said to breed in the vicinity of Cushion Lake, where a local hunter told me he had caught a few young geese every spring.

Botaurus lentiginosus. AMERICAN BITTERN.—Bitterns were very numerous in the St. Francis River marshes, April 25-30, and were frequently heard 'pumping.'

Ardea herodias. GREAT BLUE HERON.—A few were seen both on the St. Francis River and on Cushion Lake.

Rallus elegans. KING RAIL.—Two were seen and one collected May 3 in a wet ditch along a railroad at Portageville

Fulica americana. COOT.—Several small companies of two to five were seen in the reedy portions of the St. Francis River.

Gallinago delicata. WILSON'S SNIFE.—Two were seen May 1 at Kennett and two May 3 at Portageville.

Buteo lineatus. RED-SHOULDERED HAWK.—One was collected April 29 in the timber near the St. Francis River, and on May 7 a nest was found in a small tree in a dense thicket near Cushion Lake. The young in this nest were about half grown. The male bird was collected.

Dryobates villosus auduboni. SOUTHERN HAIRY WOODPECKER.—Not very common, but a few were observed both on the St. Francis River and at Cushion Lake. At the latter place a breeding male was collected.

Dryobates pubescens medianus. NORTHERN DOWNY WOODPECKER.—Several pairs were seen on the St. Francis River and on April 28 a breeding female was collected.

Colaptes auratus. FLICKER.—Rather scarce in the swamps but a few were seen in the drier parts of the timber at Cushion Lake and St. Francis River. A specimen collected at Cushion Lake seems to furnish the first record of this southern form of the Flicker from Missouri.

Corvus brachyrhynchos. CROW.—Crows are quite scarce in this region; only three were seen at Portageville and none at all in the broad fields at Kennett.

Agelaius phoeniceus. RED-WINGED BLACKBIRD.—Redwings are very abundant in the marshes along the St. Francis River and at the time of my visit they were paired and beginning to build their nests. Specimens taken there belong to the typical race. They are not common at Cushion Lake.

Sturnella magna argutula. SOUTHERN MEADOWLARK.—Fairly common at Portageville where a specimen referable to this form was secured. They were scarce at Kennett, and along the St. Francis only one was seen, in a clearing two miles back from the river.

Lanius ludovicianus [migrans ?]. MIGRANT SHRIKE.—Scarce in this region; only one pair was seen near Kennett; one of these birds was carrying nesting material into an oak tree on the edge of a plowed field.

Protonotaria citrea. PROTHONOTARY WARBLER.—This is an abundant and characteristic inhabitant of the swampy bottom lands. They were present in numbers along the St. Francis River by April 25, and on May 7 at Portageville I saw one carrying nesting material into a fence post by the roadside.

Helinaia swainsoni. SWAINSON'S WARBLER.—Not common, but a few were heard singing in the swamps along the St. Francis and two specimens were collected. When singing they sit in a tree at a height of 10 or 15 feet—often over water. The song is loud and clear, consists usually of five notes, and resembles somewhat the song of the Louisiana Water-Thrush.

Vermivora bachmani. BACHMAN'S WARBLER.—Fairly common along the St. Francis River and about Cushion Lake. They were first noted April 28 and 29 at St. Francis River when three specimens were secured and another one heard, all in a brushy clearing in the drier part of the swamp some two miles from the river. The birds taken were males and were singing from low trees at a height of about 15 feet from the ground. The song is short and sounds like a faint, weak song of the Worm-eating Warbler, but has the 'burring' quality of the song of *Vermivora pinus*. At Cushion Lake they were common and many were seen singing in the cypresses over the water. They are also fond of thick woods grown up to cane (*Arundinaria*). A female taken May 5 was evidently incubating at the time.

Dendroica dominica albilora. SYCAMORE WARBLER.—One was collected May 6 from a cypress on Cushion Lake—the only one noted.

Geothlypis trichas. NORTHERN YELLOW-THROAT.—Fairly common in the swamps and heavy timber. Specimens from Portageville and St. Francis River are referable to the northern form.

Telmatodytes palustris iliacus. PRAIRIE MARSH WREN.—Rather scarce in the marshes along St. Francis River and on Cushion Lake, but perhaps not all had arrived from the South. Two specimens were taken at the above localities.

A SERIES OF NESTS OF THE MAGNOLIA WARBLER.

BY CORDELIA J. STANWOOD.

THE warblers were late in 1907. The cold, backward spring was behind time in unfolding catkin and leaf whereon the insect hosts prey, and the warblers who live on the insect life keep pace with the resurrection and birth of moth and butterfly, mosquito and aphid, caterpillar and beetle. It was the 17th of May before I heard the *weechy, wee-chy, wee-chy*; or the *wee-o, wee-o, wee-chy*; or the *wee-chy, wee-chy, wee-chy-tee* of the Magnolia Warbler, and all of a week later before I saw one. After that they came in flocks, those gorgeous, floating flowers from their winter homes in Panama and Mexico.

The Magnolia is one of the most beautiful of the birds that comes to nest in the cool north. While migrating the bird is noticeably restless, even for a warbler, keeping well hidden within the evergreens where it feeds much of the time, although it makes frequent excursions to the larches, gray birches and other trees of the swamp and its surrounding woodlands.

On the 13th day of June, I took my luncheon for a day in the woods, not that I was going far, but the days are all too short when birds are migrating and nesting, and I was bent on hunting birds' nests. Towards noon my efforts were rewarded by finding the nest of a Magnolia Warbler nearly completed. Two days later, I came upon a second nest of the same bird, and six days later a third. On the 15th day of July, I just missed placing a fourth. By accident, I discovered the empty nest later.

All these nests were composed of similar materials,—hay, stems of cinquefoil, a plant fibre resembling hair, horsehair, plant down and spider's silk, yet each one had a character of its own, due to the greater proportion of one or other of the materials used in the nest, and the way in which the nest was placed in the tree.

The first nest was the most exquisite Magnolia Warbler's nest I have ever found, and I have been so fortunate as to locate at least twenty-five of them. In this nest some hay and the fine tops of cinquefoil served as a foundation, but the greater part of the small mansion consisted of a fine black vegetable fibre resembling horse-hair. So much of this black, hair-like material was used, that when the edge was covered with down from the willow-pod, a person looking at the dainty abode in its setting of fir twigs could see nothing but the jet-black lining and the fluffy, silvery plant-down around the throat of the nest. The structure was partly pensile, being bound with spider's silk to the two branches at right angles to the main stem. The front part of the bottom was supported by the branches beneath. The interior was modelled by the dainty curves of the mother bird's breast. It was built in a small fir two feet from the ground, surrounded by a growth of fir and gray birches.

The second nest consisted mostly of cinquefoil stems, with a few strands of hay, a lining of horsehair, and a few dots of plant down fastened over the exterior of the nest with almost microscopic meshes of spiders' silk. The cinquefoil stems make a very attractive nest. It is so brittle, it cracks every two or three inches, giving the nest a light, angular appearance which is very different from the effect produced by using hay. The dots of plant down, with the almost imperceptible silk veiling, add also to the effect of lightness, yet a Magnolia Warbler's nest is a very substantial little affair. It was placed close against the stem of a fir where the ascending branches form a partial crotch, and was about three feet from the ground.

The third and fourth habitations had the appearance of being shallower. They were made of about equal parts of hay and cinquefoil, and lined with black hair-like plant fibre and a few horsehairs. The outside was strengthened with plant down and spider's silk, and it was safely anchored to the surrounding twigs

with spider's silk. One of these nests was placed on a forked branch near the end of a long spruce bough some three feet above the ground; the other between the extreme tips of the branches of two little fir trees, at about the same height as the former.

A typical nest was about $1\frac{3}{4}$ inches wide inside at the top, and $1\frac{1}{4}$ inches deep, the bottom a half inch thick, and the walls at the top three fourths of an inch thick. All the nests somewhat resemble in shape the bowl of a spoon. In three nests there were four cream-white eggs in each, with the pinkish tinge that nearly all freshly laid eggs have, spotted in a ring around the larger end with reddish brown, umber, and black. There were minute specks over the entire egg.

In the first nest, which was unique in many respects, the eggs were marked with burnt umber all over the larger end, as if a person had scrawled over them with a Japanese brush.

The eggs were laid on four successive days before 8.30 A. M. On the fourth day the female took up the task of incubation before 10.30 A. M.

If one comes cautiously to the nest while the bird is incubating, the startled little mother usually slides silently into the undergrowth and remains there. Once when I waited by the nest a long time, the bird returned to scold, but kept carefully out of sight and chirped very little. Another bird when flushed from the nest flew to a near-by tree and fell like a dead weight from the limb with (apparently) a broken wing.

In twelve days the eggs "had wings, and beak, and breast."

On the fourth day one of the nestlings opened its eyes, tiny slits, but it closed them quickly as if afraid of the light. The fledglings were burnt orange in color, covered with long, dark brown down. The quills and feather tracts were well indicated.

On the eighth day the nest was empty, but I saw the young birds fluttering through the trees with the parent birds, only a few yards from the nest. Probably the violent rain and thunder storm of the day before had hastened their departure. (The other nests were either destroyed or the young eluded my vigilance.) When the young birds were in the trees near the nest, the old bird exposed herself most needlessly. All her caution seemed to have vanished. It was an effort to attract attention to herself from the young birds, who were immature and noisy.

Although the nests of the Magnolia Warbler were so similar, I had actually to see the bird sitting on three distinct types of nest before I could believe that all the structures were made by the same species. The third and fourth types were sufficiently similar to be identified.

In 1908, I had the opportunity to make a careful study of four more Magnolia homes. May the 13th, the birds had just begun to place the lining in a nest about two feet up in a low spruce. Both birds brought cinquefoil and black plant fibre to the nest, and entered it to put the materials in place. The female seemed to do most of the work. She pressed the material into place with her breast, moving around gradually, so as to make the sides uniform. When the birds detected my presence, which was almost immediately, they always ceased coming to the nest for a time. The rainy weather seriously interfered with work on this nest. The last material was added six days after the nest was started.

Three days after the nest was completed, on June 5, the bird laid one egg about half as large as the ordinary Magnolia egg. That would indicate that she was a young bird and this her first nest. On the evening of the twelfth day of incubation, an excessively hot day, there were two young birds in the nest. Probably one young bird died from the hot sun rays pouring down upon it while the parent bird was procuring food; the small egg remained unhatched. Of the two nestlings, one was much stronger and larger than the other.

On the third day, the eyes of the nestlings were beginning to open, and the feather tracts were indicated by dark brownish blue spaces. On the fifth day the wing quills were three fourths of an inch long, and the body well covered with pin feathers.

On the seventh day the wings of the young Magnolias were a mixture of yellow-green, black, and blue-gray, with buffy wing-bars. The head and back were dark brown, the breast heavily striped with grayish brown, and the belly was yellowish. On the morning of the tenth day, June 30, the nest was empty. I visited this nest every day for thirty-one days. If my frequent visits did not hasten the exit of the young birds from the nest, it would be strange.

June 3, 1908, I came upon two Magnolias just starting a nest in

a fir three feet from the ground. First bits of spider's silk were laid in the shape of the nest on the brush-like needles of the fir. The bird seemed to secure the spider's floss by rubbing it against the twigs with her breast. Later bits of hay or cinquefoil stems were bent in the shape of a loop or swing and secured by the silk. The next step was to bend the material in the shape of a circle around the top, always pressing it into shape with the breast and securing it at intervals with knots of spider's silk. A frame similar to this seems to be constructed by the Magnolias always before filling in the foundation. The birds were three days placing the foundation of hay and cinquefoil, and three days lining the nest with horsehair. I have seen nests that I thought might have been constructed more quickly, so little material was used either for foundation or lining.

The other two nests were similar to those I have described except that one was five feet up, and some of the red, hair-like fruit stems of bird-wheat moss were used in the lining. This was placed between the tips of the branches of two low trees. The bird that built the high nest with the colored stems in its lining, laid the smallest eggs I have ever seen in a clutch of this species, and was extremely gentle. Unfortunately crows or squirrels carried off the eggs so that at this point my observations ceased. The small eggs would indicate they were laid by a young bird, and the somewhat exposed site suggests that she was inexperienced.

In 1909, I found five nests similar to the others, with these slight differences: One was placed seven feet up in the tips of a long spruce branch and lined with coarse dark brown roots such as the Hair-bird uses for the exterior of her nest; another had a middle lining of the fine tips of meadowsweet twigs, which was coarse material for the Magnolia to handle. This latter was placed in the axis of a fir branch two feet from the ground.

The eggs of this year were much blotched with reddish brown or umber, sometimes in the wreath around the larger end the blotches being confluent; at other times the blotches pretty well covered the larger end or extended far down the sides of the egg.

On the second day of July, 1909, I came upon parent birds with young. Both old birds flew around me, chirping with consternation when I paused to chat with the dainty mite that

confronted me on a low fir. The mother spread both wings helplessly and fell from branch to branch and from low trees and stumps to the ground. The male bird contented himself with flying around with his mate and chirping. This would indicate that the male assists his mate in the care of the young after they leave the nest.

Summary of observations of Magnolia Warblers, 1905-1910.

1905, first seen, May 14.

1906, first seen, May 19.

1907, May 17, first seen; June 14, adding down to nest; June 15, foundation, no lining; June 19, 4 eggs, began incubating to-day; July 15, nesting; Aug. 1, same nest empty.

1908, May 15, first seen; May 30, foundation of nest with 3 days' work done; June 3, nest completed. June 3, nest just begun; June 9 nest just completed.

1909, May 13, first seen; June 5, nest started; June 16, bird incubating; June 19, bird incubating; June 13, bird incubating.

1910, May 27. Framework of nest started four feet up in a clump of pine. June 1, beginning to line nest with pine needles, horsehair and seed stems of bird-wheat moss. June 5, 2 eggs laid. June 20, young birds out of shell — 13 days. June 22, eyes not open; a dark spot on the head, a dark line down the back and on the edge of the wings indicate the feather tracts. Third day (morning). Wing quills $\frac{1}{4}$ inch long. Fourth morning; quills $\frac{1}{2}$ inch long, eyelids well separated, color deepened to dark burnt orange. Fifth day, wing quills $\frac{3}{4}$ inch long. Sixth day, tips of feathers just beginning to protrude beyond the sheaths, and head covered with downy feathers. Eighth day (evening) young covered with gray and brown downy feathers; tips of tail feathers showed buffy, and the wing-bars were conspicuous; much of the baby down still clung to the tips of the feathers; birds alert but not timid. Ninth day (morning), birds not timid; may leave at any time. Tenth day, June 30. Nest empty. One of the four eggs not fertile.

SOME RARE WILD DUCKS WINTERING AT BOSTON,
MASSACHUSETTS, 1909-1910.¹

BY HORACE W. WRIGHT.

Plates XIX and XX.

UNDER the beneficent protective game-laws of the State, by which lakes and ponds within city parks and state reservations are made safe and secure for resident and migrant birds from all shooting and interference, it has come to pass that a little company of wild ducks rarely seen hereabouts is wintering within the city limits. About four miles out from State Street in the West Roxbury district lies a pond, covering an area of sixty-five acres, known as Jamaica Pond. It is beautifully set in what is now Olmsted Park. On the easterly side of this pond rises a rather steep bank with growth of pine, giving the name "Pine Bank" to the former private estate. Here is now the administration quarters of the city Park Commissioners. On all sides, except the Jamaica Plain side which is to the southeast, the land rises gradually, notably on the northerly and westerly sides, where are extensive private estates beyond the limit of the park. Along the westerly shores, which are now the park lands, was the home of Francis Parkman with its rose garden. The pond, therefore, has by nature a protected setting in the midst of a beautiful environment. It is deep in the middle; the depth has been estimated to be fifty-five feet. But on the westerly side and in a cove reaching northward the waters are comparatively shallow. It is the largest natural piece of fresh water within the limits of the city. And it was the first source of water supply for Boston; the conduit composed of pitch-pine logs bored out like pump-logs was completed in 1795. But long since it ceased to be a part of Boston's water-system. Into the pond on the northwesterly side flows a brook. When winter comes and covers all the ponds with ice, the formation of which Jamaica Pond resists successfully for a time,

¹ Read before the Nuttall Ornithological Club, Cambridge, Mass., February 21, 1910, with some slight subsequent additions and emendations.

along this northwesterly shore where the brook enters and a breeze seems always to come down from the northwest moving the waters, an area continues open even after the remainder of the pond is frozen,—an area successively diminishing night by night of severe frost. So the water-fowl which come to the pond are able to remain late, sometimes into early January.

Next northward from Jamaica Pond, following the parkway, lies Ward's Pond set in a small basin and covering somewhat less than three acres. Here occasionally a wild bird alights and remains for a time. Next, proceeding northward still, are three pools fed by active springs which prevent the freezing of the waters. The largest pool is known as Willow Pond. Small as this is, occasionally it receives a wild duck or two in midwinter, when the weather is severe and closes up the other ponds. Next lies Leverett Pond, which in earlier years was a swamp, but was converted by the Park Commission into a pond of twelve acres. Without much width it stretches out well in length and lies between hilly ridges. On the easterly side is Parker Hill in Boston; on the westerly side, the High Street district and its elevated lands in Brookline. Leverett Pond receives Muddy River, which forms the boundary between Boston and Brookline and flows through the Back Bay Fens into the Charles River Basin. The entrance of the river into Leverett Pond, although it is a very insignificant stream, serves to keep an area of open water toward its northerly end and except in very cold weather even across to the opposite shore. In the severest cold waves of the winter the open water is not entirely lost, although it may be diminished to an area not more than fifty or sixty feet across. Here a flock of park Mallards has wintered as usual. Throughout the year a small flock lives on this pond and breeds. At Jamaica Pond a much larger flock breeds, and some of these Mallards, when the keeper gathers in his flock in early winter for life in houses and pens, escape and secure a more natural life at Leverett Pond. So the flock on this pond is increased by an accession from Jamaica Pond. It has numbered about sixty ducks the present winter. Two European swans have lived throughout the winter with them. Bridle paths and park roads border these ponds, in some places closely, in other places somewhat more

remotely. There are walks along the shores throughout their extent. Thus, being attractive spots in the park-system, many persons move daily afoot, on horseback, or in carriage or automobile, and the situation is not isolated, but on the contrary is in very close touch with the town centre of Brookline and in the pathway of pleasure travel.

On these open waters of Leverett Pond five species of wild ducks have wintered; namely, Baldpate (*Mareca americana*), three drakes and one duck; Redhead (*Marila americana*), a duck; Canvas-back (*Marila vallisineria*), a drake; Lesser Scaup (*Marila affinis*), a drake; and Ring-necked (*Marila collaris*), a drake.

All of these birds first appeared in Jamaica Pond. There is scarcely any basis for doubt that they are the same birds which successively came there in the autumn and early winter and remained to the complete freezing up of the pond. This took place on December 30. The small area which had remained open and grown somewhat smaller night by night was then closing up. Thus the ducks were given notice that they must quickly leave, and the operations of the park employees on that day precipitated their departure; for it was a matter of mercy and necessity that the park ducks should be gathered in. This was done by the use of a stretched seine or netting held around the flock by several men, by means of which they were slowly drawn into a pen in which they could be conveyed to winter quarters. The wild ducks naturally took wing and dispersed. But it proved that they did not go far and were not long lost to view. The four Baldpates passed at once to Chestnut Hill reservoir, which is a part of the city's water supply and also within the city limits, where the water pumped in and rising forcibly to the surface serves to keep a considerable area open in the coldest weather. This reservoir is about two miles distant across country from Jamaica Pond. The Baldpates remained here but a brief time, however, for all four were seen on Leverett Pond on January 5. The Redhead and the Canvas-back were not located for two or three days, but they could not have gone far, for they both came back and were seen on their return on Leverett Pond. No Lesser Scaup drake had been seen on Jamaica Pond later than December 24; two had remained there up to that day. January 3 a Lesser Scaup drake

was with these other ducks on Leverett Pond. If he were one of the two Jamaica Pond drakes, his absence had been longer than was that of the ducks of the other species, but it would seem probable that he was one of the two and had rejoined his former companions. The Ring-necked drake was absent from Jamaica Pond after December 27. On January 5, he appeared on Leverett Pond, having joined the others, perhaps on the preceding day. So constantly have these wild ducks been visited by myself and many local observers that little has occurred in connection with them which has not gone on record. When they left Jamaica Pond and I found only the Baldpates on Chestnut Hill reservoir, I concluded that the others had gone for good, and I did not for several days pass through Olmsted Park where Leverett Pond is situated. But I have learned from several observers who did pass through that they came to this pond successively between January 2 and 5, all being present on the last date. None were present, I am credibly informed, on January 1 or December 31. It is not improbable that in the brief absence of these ducks between their life on Jamaica Pond and their life on Leverett Pond, except in the case of the Baldpates, they were on the waters of the Back Bay Fens near the Somerset Hotel, where another park flock of Mallards lives. I have no definite records, however, to show that such was the case. When, however, on February 19 they disappeared again for two days, these waters through to the Charles River Basin were carefully searched by several observers, and they reported that the ducks were not there, neither on Chestnut Hill Reservoir nor on Fresh Pond in Cambridge, where were open waters. Where, therefore, they went in these and subsequent brief absences has not been ascertained.

In answer to queries whether any of these ducks spoken of as wild might be park ducks which had escaped, it may be said that the only such source from which any one of them could have come is Franklin Park, where is kept on a small pond during the summer and housed during the winter a collection of ducks consisting of several species. But there are no Baldpates in this collection, neither Canvas-backs, Lesser Scaups, or Ring-necked Ducks. In 1906, so I am informed by the assistant superintendent, a pair of American Widgeon, or Baldpates, was purchased and placed on

the pond in the park. They disappeared, he says, some time ago, meaning, as I understand from others, two years or more ago, and he knows of no other Widgeon there at any time. No Canvasbacks have recently been members of the collection. I never saw within it any Scaups or Ring-necked Ducks. Redheads, both drakes and ducks, it contains. But the Redhead duck of Jamaica and Leverett Ponds is distinctly larger and finer than these Redheads which have lived and bred in captivity. Since all the evidence goes to show that the ducks of the other four species are wild ducks, which have deliberately chosen the waters of these two ponds for their winter home, it seems quite fair to assume that the fifth species, the Redhead, is also a wild duck. I have, moreover, consulted the park department, represented by those who care for the ducks, as to whether they missed a Redhead duck from their flock at the time of the appearance of this one on Jamaica Pond, December 27, and have learned that they did not. The testimony is that in the gathering in at Franklin Park they lost only a Wood Duck drake. The behavior of all these ducks also confirms the idea that they are wild ducks, since in every case they were much more shy upon their arrival and gradually grew more trustful through association with the park Mallards, these being often fed by the children. So the fact that these ducks have come to receive of such offerings at Leverett Pond must not be taken as invalidating the necessary assumption of their wildness by nature. In other seasons other wild ducks of various species have behaved similarly on these ponds and have become very tame and unsuspicious of harm, when in association with the domesticated Mallards.

More detailed accounts of the arrival and stay of these five species of ducks will now be given, and, incidentally, such previous recent records of other ducks of these species on these and neighboring waters as I myself made or have obtained from local observers.

BALDPATE.—Two Baldpate drakes and one duck were first observed on Jamaica Pond on October 19. Members of the Norfolk Bird Club of Brookline report that they arrived on the 17th. These three Baldpates were constantly seen by myself and others from these dates up to November 29, when an additional drake arrived. The four then remained to the time of the closing



CANVAS-BACK, BALDPATE, AND (NEAR THE ICE) THE LESSER SCAUP AND RING-NECK.

From a photograph by Mr. Frank W. Jones.

of the pond with ice, December 27 being the last day that they were seen together on this pond. On December 28 and 30, two drakes still remained on the pond, but one drake and the duck had gone to Chestnut Hill Reservoir. December 31, all four were on the reservoir and continued there, as far as we know, to January 5. On that day, Miss Bertha Langmaid informs me, all four were seen by her on Leverett Pond. Here they have remained, with the exception that on January 17 there was a scattering of all these wild ducks for some reason and one Baldpate was seen by me on the reservoir, the duck on Leverett Pond, and, I am informed, two drakes were seen on the small Willow Pond next southward in the park. These birds are finely plumaged, the drakes showing their characteristic colorings very beautifully. The duck is somewhat smaller than they, and she is more nimble when bread is thrown to the combined flock, although all the four Baldpates readily swim near shore, showing little fear, while they manifest a degree of wariness.

The previous season, 1908-9, a Baldpate drake wintered on Jamaica and Leverett ponds. He was first observed on Jamaica Pond, December 15, and remained there up to nearly the end of January, when after a few days' stay at the reservoir he came to Leverett Pond. Here he continued up to April 5, being last seen by Mr. James L. Peters. He was joined by a Pintail drake (*Dafila acuta*) on February 22, which continued on the pond for a month and was last seen on March 21. This Pintail drake was joined by a female on March 12, which stayed beyond the departure of the drake and was last seen on March 28.

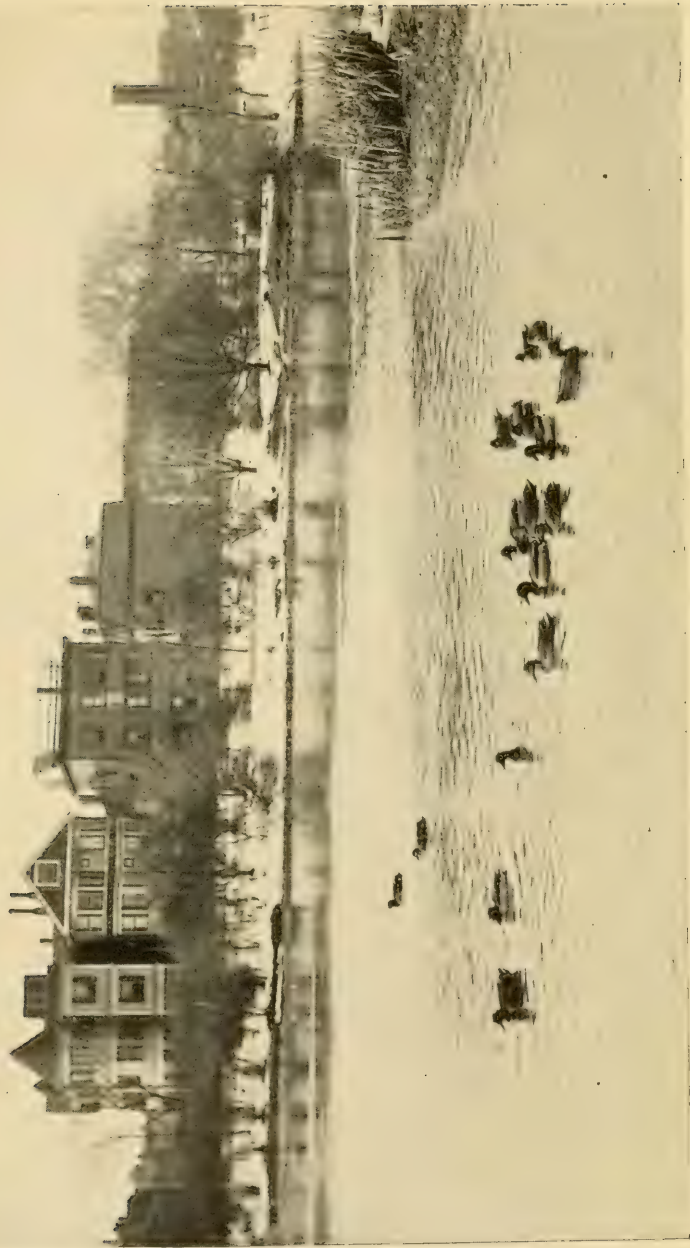
REDHEAD.—I had observed no Redhead on Jamaica Pond the present season until December 27. On that day a female was seen swimming about closely with the Canvas-back drake. It was plainly identified as a Redhead, as it was afterward on Leverett Pond by several fellow members of the Nuttall Club. It was again seen by me on the following day. But in the disturbance, attending the gathering in of the park flock for housing on December 30, this Redhead was lost sight of in my visit on that day and was not traced for the two intervening days to January 2, when she was seen on Leverett Pond by local observers. So far as known, she has daily continued there with two or three exceptions when

for a day or two days she has been absent somewhere with her companions. This Redhead duck is intermediate in size between the Ring-necked drake and the Canvas-back drake being perceptibly larger than the former and somewhat smaller than the latter. The bill is dark slate with a black tip, and no obscure band is apparent. Dr. Charles W. Townsend has called our attention to the fact that this Redhead as well as the Canvas-back dive with wings close to the side, as do the Scaups.

Mrs. Edmund Bridge informs me that she saw a female Redhead on the pond on November 30. This bird did not remain. Two other records on Jamaica Pond will be of interest in this connection. On December 23, 1905, in company with Mr. Gordon B. Wellman, a Redhead drake was seen. He was with Black Ducks and Mallards and came in close to the shore with them, while we were at some distance. By careful approach we had a very near view of this handsome drake before he swam farther out. It was a day when a light rain was falling and the same day on which a Canvas-back drake was found on Fresh Pond in Cambridge. Another earlier record is that of a Redhead duck seen on November 17, 1906.

There are two Fresh Pond records in recent years, given in Mr. William Brewster's 'Birds of the Cambridge Region,' namely: On October 21, 1902, Mr. Richard S. Eustis observed a flock of five Redheads, two males and three in the plumage of the female. Mr. Brewster saw two males, presumably the same birds, he thought, on November 14 and 30 and December 1. In 1903 a Redhead drake was seen by Mr. Walter Deane on December 6, and on the 11th, 17th, and 21st of the month either the same or a similar bird was observed by Mr. Harold Bowditch. On the waters of Chestnut Hill Reservoir Mr. Richard M. Marble and Mr. Barron Brainerd saw a flock of six Redheads, four drakes and two ducks, on March 21, 1909.

CANVAS-BACK.—I first saw the Canvas-back drake on Jamaica Pond on December 14. Mr. J. L. Peters had seen the bird on the 12th. It was constantly seen by me and many interested observers on this pond up to the closing day, December 30. Four days later Miss Bertha Langmaid saw it on Leverett Pond, and there it has remained, constantly visited and admired, with the exception



CANVAS-BACK AND TWO BALDPATES.
From a photograph by Mr. Frank W. Jones.

of one day, January 17, when this little company got scattered but quickly came together again, and an occasion in late February, when it was absent for two days with its companions, but again returned. This drake is regarded as a very fine type of the species. The red iris is easily discerned when the bird is near, and the heavy black bill extending almost straight out from the line of the crown is very apparent even at a distance. He and his other wild companions succeeded in getting some of the bread which during a visit of observation Mr. Francis H. Allen and I threw to them, although the park Mallards were rather too quick for these wild birds to secure much in this manner of feeding and were more ready to come near than they. But these ducks afforded us very close views; the range sometimes was not more than twenty-five or thirty feet. A month later these ducks had become still less timid and allowed Mr. E. E. Caduc and myself to stand as near as fifteen feet of them, while they actively fed on the bread thrown to them and were successful in getting all they desired.

Four other records of Canvas-backs in this vicinity in recent years may be mentioned. A drake in full adult plumage was seen by me on Fresh Pond, December 23, 1905, and remained there to January 8, seventeen days, when the pond closed up with ice. He was in company with a flock of Black Ducks, and it seems as if his stay depended solely upon the pond continuing open in some part, in which case he might have been disposed to remain throughout the winter. It is on record in Mr. Brewster's 'Birds of the Cambridge Region' that Mr. Harold Bowditch and Mr. Richard S. Eustis saw a female Canvas-back on Fresh Pond on November 18, 1903. This bird was seen by me on the 20th and by Mr. Brewster and Mr. Walter Deane on the 30th. The third record is that of a drake seen by me on Chestnut Hill Reservoir on March 9, 10, and 12, 1908. The fourth record was also on the reservoir where on March 21, 1909, Mr. R. M. Marble and Mr. Barron Brainerd saw a drake, which was not present on the following day.

LESSER SCAUP DUCK.—One young male Lesser Scaup was first seen by me on Jamaica Pond on November 12. Two Lesser Scaup drakes had been seen on the pond on September 25 by members of the Norfolk Bird Club, and on October 31 a male and a female

which remained for a time. While the young drake showed the black head and breast of a drake, he had a white face in the region around the base of the bill. He was joined by a female on November 25, and the two were seen together up to December 16, when two adult drakes and another female arrived, making a little company of five Lesser Scaups. Five days later, December 21, the young drake disappeared and was not seen again. The two adult drakes remained to December 24, after which they were not seen on Jamaica Pond. The two females staid to December 28, and were not seen after that day. The re-appearance of one drake on Leverett Pond, January 3, which remained constantly up to February 19, suggests that he is probably one of the drakes which had been on Jamaica Pond with the same companions he now has. The purple gloss of the head has been apparent in strong sunlight, making it certain that the bird is a Lesser Scaup and not an American Scaup; in size also he would be counted a Lesser. This drake is rather the shyest of the little company on Leverett Pond and refused to come for any of the bread offered and taken by his companions. He departed on February 19 or 20, attended by his companions. These came back two or three days later without him, and he was not again seen.

One or more Lesser Scaup ducks usually visit Jamaica Pond in the fall. In 1906, a female, first seen on November 2, was observed from time to time up to December 2. In 1908, a flock of eight birds was recorded on November 26. Two had been seen on November 4 by members of the Norfolk Bird Club. Some of these continued on the pond up to January 15, 1909. One spring record is that of a female seen on April 6, 1909. Dr. Harold Bowditch informs me that in 1900 and 1901 he saw on Jamaica Pond a considerable flock of Lesser Scaups. On December 15 and 16 in the former year it numbered from twenty-five to thirty birds; on December 1 of the latter year, fifty birds.

RING-NECKED DUCK.—Two female Ring-necked Ducks were first observed on Jamaica Pond on October 30. Members of the Norfolk Bird Club had seen these birds on the 26th. They remained in association with the other ducks, were frequently seen, and as often confirmed to be Ring-necks, and not Redheads, by comparison in size with the other ducks. On November 25,

a very beautifully plumaged drake had joined them. The drake and the two females remained to December 20. The following days none of the three were present. The two females did not appear again. But the drake was present once more, just for the day, on December 27, and was not seen again on this pond. On January 5, however, he re-appeared, for we can scarcely suppose that it was a different bird, and was seen on that day on Leverett Pond by Miss Langmaid. He has continued there with the exception that on January 17 he was absent for the day when others of the little company were also absent and again absent with his companions on February 20 and 21. In clear sunshine the purple tinting of the head is apparent, and the rather obscure chestnut ring about the neck has several times been seen, when the neck has been outstretched. A conspicuous feature of his plumage as he sits on the water, even at some distance, is a white band on the side of the breast in front of the wing when closed, having the appearance of a bar, but continuous with the white under the wing when the wing is spread. With closed wing as the bird sits on the water the upper portion of this white bar lies between the black of the breast and the black of the wing; the lower portion between the black of the breast and the finely barred side. The band across the bill, which is blue with a black tip, is pure white, and not bluish gray, and constitutes also a conspicuous feature of the bird. The bill at its base, moreover, in its junction with the face is clearly outlined with white. This outlining is quite discernible at some distance. Thus all the characteristic markings of the species are in strong effect. But the small white patch of the chin had not been seen upon any visit until on a day in late February he raised and drew back the head sufficiently to make it twice appear. This patch, therefore, is not a distinctive mark for identification except the bird be in the hand. The crown feathers are usually somewhat raised, producing the effect of a slight crest, and the sides of the head appear puffed out in the same manner. The Lesser Scaup's head did not have this appearance. He appears of the same size as the Lesser Scaup drake. They are often in juxtaposition, affording good opportunities for comparison of plumage as well as size. This is the first record in recent years at least, so far as I am aware, of a full-plumaged drake

in this vicinity. This Ring-neck also dives with wings close to the side.

In 1907, a single duck was seen on the pond on October 21, was joined by four others on the 26th, and by three more two days later, all female or immature birds. These, after many very satisfactory views of them, I regarded as Ring-necks. Dr. C. W. Townsend judged them to be rather of the size of Redheads and so regarded them. Some of these remained to November 12. On the 13th none were present. I viewed them at times on the shore at near range, and they seemed to be in body scarcely larger than the Coot (*Fulica americana*), which were near them. It was the same when the two species were swimming together. These ducks also showed an obscure band across the bill above the tip. The female Redhead present with us this winter shows no band, even obscure, across the bill. It seems of interest to mention the occurrence of these ducks here, whether they were Ring-necks or Redheads. The occurrence of so many was rare in either case.

Mr. William Brewster records in his 'Birds of the Cambridge Region' the presence of two female Ring-necked Ducks on Fresh Pond in the afternoon of November 30, 1903.

In connection with the account of the entire winter stay of these representatives of five species of wild ducks, it may be of interest to present the full record of the fall and early winter season of 1909 at Jamaica Pond, as this will indicate how much the pond is availed of for a time by wild waterfowl in their southward flight, and will show what companions, transient or more permanent, these wild ducks had while they remained upon Jamaica Pond. Leverett Pond and the other waters in this section of parkway will be incidentally referred to by name as receiving migrant waterfowl, and mention will also be made of other recent records upon these waters and the waters of Chestnut Hill Reservoir, likewise in Boston, and of Fresh Pond in Cambridge. I am indebted to a number of local observers for many of the records.

Podilymbus podiceps. **PIED-BILLED GREBE.**—One was recorded from November 4 to December 18. This grebe was first seen on October 31 by members of the Norfolk Bird Club. One or two have also visited the pond in each of the three preceding years. The visitant sometimes passes to the waters of Ward's Pond.

Larus argentatus. HERRING GULL.—Occasionally one or two or a small flock appeared at the pond in November and December. They are infrequent visitors. But on January 5, 1909, a showery day, a flock numbering a hundred was seen. They also appear on occasion at Leverett Pond and in the Fens.

Mergus americanus. MERGANSER.—Two drakes in full adult plumage were seen on Leverett Pond on February 9 by Mr. E. E. Caduc, when in company with Mr. F. W. Jones some photographs of the wild ducks were taken. Mr. Caduc states that they were fully in view upon their arrival and remained for several minutes, when they took wing away. They have been regular winter visitors to Chestnut Hill Reservoir, two miles distant, when undisturbed, where on one day of the present winter sixty-six were counted by Mr. W. C. Levey. On March 20 Mr. Barron Brainerd states he saw two males circling about Jamaica Pond. This was at the time the ice had just disappeared. The Norfolk Bird Club reports that a drake was seen flying around the pond on December 14, 1908. The species is a very infrequent visitor to either of these ponds.

Anas platyrhynchos. MALLARD.—Several individuals, notably two drakes, either arrived with or associated themselves upon their arrival with the Black Ducks in November and December and remained with them apart from the park Mallards. Later they went with the Black Ducks, upon the closing up of the pond, to Chestnut Hill Reservoir and still later were seen with them on Fresh Pond. When the latter re-appeared upon the ice of Jamaica Pond several days successively in January, these two Mallard drakes were still with them. On several occasions one or two female Mallards also were identified among this flock of Black Ducks. It is quite probable that other wild Mallards arrived in the fall and either joined the park flock or departed. Several individuals were noted in the autumn that appeared shy for a time and kept well off on the pond, and later at Leverett Pond there continued to be shy individuals in the park flock.

Anas rubripes and *Anas rubripes tristis*. BLACK DUCK.—A small number arrived in early October, and this number was increased quite steadily up to December 11, on which day I counted one hundred and seventy. The numbers then diminished gradually

to nearly the end of December, when all were gone from the pond and one hundred and seventy-five were counted on Chestnut Hill Reservoir on December 31. There had been but ten on the reservoir on December 21, while the large flock still remained on Jamaica Pond. The Black Ducks make this change quite regularly season by season when Jamaica Pond freezes up, but they always choose the pond in preference to the reservoir when they arrive in the autumn and remain on the pond as long as it is open. Their return to sit on the ice some hours of the day, January 19, 20, and 22, as two independent observers inform me that they did, indicates their liking for the pond. This preference is doubtless strengthened by their sharing in the feeding of the park Mallards when they are associated with these in the fall and spring. Mr. J. H. Kelley, who cares for the park ducks, informs me that many of the Black Ducks come in shore with the Mallards for the corn which he scatters. It should be stated also that measures have been employed the present winter to keep all water-fowl off the waters of Chestnut Hill Reservoir under the direction of the Water Commissioners, who entertain the idea that the waters are polluted by the presence of the birds and that germs of disease may be conveyed by the gulls coming up from the sewage-contaminated waters of the harbor and bathing in the reservoir. So, acting upon this theory, a plan of firing blank cartridges, when they are gathering, was conceived and put in practice as a means of dislodging and deterring them. This expedient, closely followed up, has been efficacious. For I have been again and again to the reservoir this winter to find only, perhaps, two or a half-dozen American Mergansers and as many Herring Gulls, or none at all. In previous winters there have often been present from twenty to thirty mergansers, sometimes hundreds of gulls, including many Great Black-backed Gulls, and a permanent flock of Black Ducks, throughout the day, numbering a hundred or more, usually accompanied, whether on the ice or on the water, by severals Mallards. Such a company of water-fowl has been entirely absent the present winter, and the Black Ducks have had to seek a refuge elsewhere. This refuge was often Fresh Pond. On February 20, Mr. W. C. Levey informs me, the flock numbering one hundred and seventy-five was seen by him there, accompanied by three Mallards, two

drakes and a duck. The number of the flock seen on these several bodies of water indicates beyond a doubt that it is one and the same flock remaining tenaciously throughout the winter and occupying one or another of these places at will according to conditions.

Nettion carolinense. GREEN-WINGED TEAL.—A female was seen on the pond November 12 and 13, frequently coming to the shore with the Mallards and allowing approach as near as fifty feet. This was a transient visitor only. Two days later, Mrs. Edmund Bridge, who had seen the bird with me at Jamaica Pond, saw a female on a small pond in the Arnold Arboretum about a mile southward, presumably the same teal. Mrs. Bridge says it was as unconcerned there as it had been on Jamaica Pond.

In connection with this record it may be interesting to state that in the season of 1907-8 a Green-winged Teal drake passed the entire winter in Boston and vicinity. I first saw him on December 13 in the Back Bay Fens. When the waters here became frozen, he passed for a time in January to Jamaica Pond, I am informed. Later he accompanied a flock of park Mallards to the Charles River Basin, where Muddy River enters, and lived there for a while. I saw him there on January 28 and February 10 and 14. On February 15 he had gone to Leverett Pond, and on February 26 was on Chestnut Hill Reservoir. On March 12 and 14 he was again seen in the Fens and on March 16 was on Fresh Pond. Further he was not traced. He was very handsomely plumaged, would swim about happily with the Mallards, and allow one to view him as near as twenty or thirty feet. I was informed by a patrolman in the Fens, where I first saw this teal, that he had come and joined the Mallards about the first of December. In all probability the teal seen in succession on these six different bodies of water was one and the same teal. It was my wont, when I found him in a new location, to go to the place where I had last seen him, and I found in every instance that he was absent from there. Thus it proved impossible to locate two Green-winged Teal drakes in the vicinity. One other record in a recent year should be mentioned, that of a female on Leverett Pond, December 22, 1906.

Aix sponsa. WOOD DUCK.—Mr. Barron Brainerd informs me

that on October 29 he saw in company with Dr. W. C. Mackie a female Wood Duck fly in from the southeast and settle upon the pond. When he called to another observer, who was not far away, the duck took wing and disappeared over Brookline. Occasionally in previous seasons one has made a brief call to the pond.

Clangula clangula americana. GOLDEN-EYE.—The Golden-eye is an infrequent visitor to the pond, and when a bird or two of the species appears, it is usually for the day only. On November 26 a single female was seen. Mrs. Edmund Bridge mentions seeing a drake on the pond on December 13. Mr. Brainerd states that he saw a pair of Golden-eyes on Leverett Pond on March 6, 1910.

Charitonetta albeola. BUFFLE-HEAD.—In two seasons in recent years I have a record of this species on the waters under consideration. On November 16 and 18, 1906, I saw a young drake in the Back Bay Fens, and on November 26 and December 15 an immature bird, perhaps the same, on the Charles River Basin. This basin had been the winter home of a pair during the season of 1905-6. A flock numbering eight birds, two of them drakes in adult plumage, had been present in December, and this pair continued on through January to early February.

Mr. Barron Brainerd testifies to seeing four ducks on Jamaica Pond in the early morning of October 29, which appeared to him and his companion, Dr. Mackie, to be Buffle-heads on account of their size and color, but the light and their distance out on the middle of the pond prevented a positive identification.

Erismatura jamaicensis. RUDDY DUCK.—The Ruddy Duck is a regular visitor to the pond. On October 19 six were present and in the same forenoon two others were seen on Leverett Pond. The Norfolk Bird Club reports that on October 10 the first Ruddy appeared. At the end of October there had been an increase in number. Nine were on the pond at that time and three others on Leverett Pond. Mr. Brainerd reports that he saw seventeen on Jamaica Pond on November 18. The number fluctuated from day to day up to December 17, when there were still eleven present. On the 20th there were but five, and on the 21st there was but one. On the next day none remained. All the Ruddies, therefore, left the pond in advance of its complete freezing up, but not until a strong suggestion that this was impending gave them a plain

warning. The previous season two had remained with open water to January 5. In 1907 two remaining from a larger flock were last seen on December 14. In 1906 the last one remained to December 6.

One spring record is that of a Ruddy drake seen by me on Fresh Pond on March 23, 1910.

Branta canadensis. CANADA GOOSE.—Mr. Barron Brainerd states that on the afternoon of November 14, while at the pond, he heard a few "honks" and soon saw twenty-eight Canada Geese come into view from the north and pass over. They were in one line. There have been occasions when a migrating flock has alighted on the pond.

Fulica americana. COOT.—This species is also regularly present year by year. The number has rapidly increased, however. In 1906 ten was the maximum; in 1907, twenty-two; in 1908, an off year, only three. I found on October 19, 1909, that there were twenty-nine present. The Norfolk Bird Club reports this number present on the 17th. The number went on increasing until a month later, November 22, there were thirty-nine. This maximum was held for five days, when there began to be a slight decrease, but even a month later, December 21, there were thirty-three present. The number then fell off rapidly to eleven on the 28th, and to five on the day of the closing up of the pond, December 30. These five were penned with the flock of park ducks, geese, and swans, but escaped, save one, and flew out on the ice and then round about, looking for open water, but finding none. As no more was seen of these birds, I surmise that they proceeded farther south, as sections of the flock had already done within the preceding few days. One was secured with the park fowl and is in captivity with them at Franklin Park.

One Coot wintered during the season of 1907-8 on Jamaica and Leverett Ponds. It was the remnant of a flock which at its maximum numbered twenty-two birds. This coot was seen on January 1, 14, 20, and 28, on all of which dates the pond was partially open. In February and March the bird was on Leverett Pond and remained there up to April 8, after which no further record of it was obtained. One Coot appeared on Jamaica Pond in the spring migration of 1910. It was first seen by Mr. Kelley

on April 2 and by me on April 4. It remained to April 15. The captured coot was still at Franklin Park and swimming about on the waters of the pond there with the collection of ducks and geese when this coot appeared on Jamaica Pond.

The little company wintering on Leverett Pond, which has much interested the local bird-observers, was still present unbroken on February 19. On February 20 all but the four Baldpates were absent and continued absent over the 21st. On the 22d they had returned again with the exception of the Lesser Scaup drake, which was not again seen. Throughout the winter this drake had been rather the shyest of the little company. Where these birds went when absent for a day or two, as has occurred several times, we do not know. A search was made of all the neighboring waters on the 20th, when they were missed by several successive visitors to Leverett Pond, but none of these observers, familiar with them, could find them. Yet two days later they had returned, leaving, however, the Lesser Scaup behind.

To have had an individual of any one of these species with us throughout the winter would have been a rare occurrence. Therefore the presence of the five species on Leverett Pond furnishes an extraordinary record. It would not have been possible except for the two facts that the waters are protected and that open water, at least to a limited extent, is secured to them. Back of these necessary conditions lies one other fact that the wild fowl in unusual numbers came to Jamaica Pond in the fall and early winter and found it an acceptable place for tarrying. So these ducks, having remained late and become wonted to the conditions and to association together, when it became necessary to take to another spot, sought one near at hand. They wavered somewhat in the selection, but in a few days were of one mind and chose the place plainly the most favorable for them. Here they have lived happily and well, relieved of their natural fears by the presence of the park Mallards and becoming quite like domesticated ducks.

Something will now be added concerning these ducks as winter departed and spring opened and concerning their final disappearance, this being an addendum to the paper as read before the Nuttall Club.

On the first day of March the ice had nearly gone from Leverett Pond and these ducks were swimming in the newly opened southern portion. As soon as they had open water over its entire extent they began to show more shyness and sought the middle of the pond when an observer approached the shore. On the night of March 20 Jamaica Pond became free from ice. Here already some Black Ducks had been coming for a few days while much ice remained. Thirty-six were counted on the waters on March 22. Three days later there were rather more than a hundred, and about the same number was still present three weeks later, on April 13. In the flock there appeared to be about as many *rubripes* as *r. tristis*. They were more scattered over the pond than is the case in the autumn. With them were two pairs of Mallards, the companionship suggesting that these were wild birds and not members of the park flock. On March 20 Mr. Barron Brainerd had seen two pairs of Mallards asleep on the ice with the Blacks. The number of the Black Ducks diminished day by day after April 13, until on the 19th none were present. Their departure may have been hastened, perhaps, by the use of boats on the pond, which began a few days previous and was obviously a disturbing factor.

On March 22 the little company which forms the basis of this paper was still intact on Leverett Pond except the Lesser Scaup drake, which, as before said, had already disappeared. On March 25 the Redhead duck, the Canvas-back drake, and the Ring-necked drake had passed to Jamaica Pond. There they were seen by me and by Mr. Brainerd. On the following day Mr. W. C. Levey and Mr. J. H. Kelley saw them still there. On the 27th Mr. Brainerd saw them all in the forenoon on Jamaica Pond and in the late afternoon, a little after 5 o'clock, he says, saw them all on Leverett Pond. This was the last record obtained of them. They must have left that night or on the next day, for on the 29th, when they were again looked for, they could not be found and were not again seen. The presumption is that they left together, just as they had always been in association together and in their several changes of location from the one pond to the other and in their successive brief absences during the winter either all three or none of them were seen. On the March 25 ob-

servation it was found that one Baldpate drake had disappeared, leaving the three other Baldpates behind. One drake, it may be of interest to recall, had joined the two drakes and the duck six weeks after their arrival on Jamaica Pond in the fall. This day one Baldpate drake and the duck were seen on Leverett Pond, swimming about closely together as a pair. This drake, which appeared to be paired with the duck, was the handsomest of the three, having a more pronounced white crown, which throughout the winter had made him the most conspicuous of them. No courtship actions of the pair, however, were witnessed by myself or by Dr. C. W. Townsend, who gave them close attention for a time in the warm forenoon of this day. The third drake, though not seen on this day, was subsequently present with the pair. These three remaining Baldpates were again seen by me on March 31 on Leverett Pond. They had been going back and forth from the one pond to the other for several days. On April 1 they were seen on Jamaica Pond by Mr. Kelley and also by Mr. Brainerd, but were not again seen by them or me there or elsewhere.

The departure of these ducks from the waters where they had lived throughout the winter and into early spring at the time of the general northward migration further strengthens the necessary assumption that they were wild ducks, that they came from a state of wildness and returned to a state of wildness, having behaved during their season of association with the park ducks almost as if they were domesticated.

A HERMIT THRUSH STUDY.

BY NORMAN MCCLINTOCK.

SOME forty miles northwest of Marquette, Mich., on the south shore of Lake Superior, are situated the Huron Mountains of granitic formation. Here are also found several wild and beautiful inland lakes. The drainage of two of these, Pine Lake and Mountain Lake, forms Pine River, the entire length of which, before it empties into Lake Superior, is only about one and one half miles. Three quarters of a mile from this river's outlet a Hermit Thrush's nest containing four eggs was found by a boy, upon July 24, 1907. The nest was built upon the sloping river bank, fifteen feet from the water's edge, and with a southwestern exposure. At an equal distance on another side of the nest was a swamp overgrown with a thicket of alders, which bushes also lined the river bank. The nest was placed on the ground beneath a low huckleberry bush, the latter being overspread by the pendant fronds of a fern brake. The surrounding vegetation of the immediate vicinity consisted of little white pine seedlings, huckleberry bushes, brakes, wintergreen plants and trailing arbutus. The region was also wooded, the trees consisting almost entirely of pines — Norway, white and jack.

Three days after the discovery of the nest, it was visited again, when two of the eggs were hatched. On the day following, July 28, there was a third young bird. The fourth egg proved to be addled.

It was not until August 2 that I was able to begin the following observations, which were made from a dark green denim blind, supported by an umbrella, according to Mr. F. M. Chapman's specifications.

From this blind I also secured a series of interesting photographs, several of which were published in 'The Outlook' of April 23, 1910, together with a short account of my Hermit Thrush study.

Nest Construction.

The nest was entirely composed of the materials with which the ground, surrounding the site, was thickly strewn; namely, dead Norway and white pine needles, green moss, decayed wood and dead twigs. Although there were jack pines within a few feet of the nest, no needles of this species were used. For the inside lining of the nest, the finer white pine needles were exclusively employed. The green moss was worked into the downward sloping wall of the nest, but was not found in the rear wall. The decayed wood was worked into both the rear and front walls. The only other material gathered by the thrushes were a few dead twigs, which were promiscuously scattered over the other materials of which the nest was constructed.

I wish to offer here what seems to me a probable and satisfactory explanation why the color of the Hermit's tail is lighter than the rest of its upper parts. In my observations, I noted that the small bits of decayed pine wood, which were scattered about the ground, were of a conspicuously lighter tone than the brown of the predominating pine needles and other dead leaves. Not only this, but when the sun shone, spots of sunlight filtered through the trees and undergrowth, lighting up patches of brown upon the ground. The color of the Hermit's tail had just the effect of the small pieces of dead wood and of the sunlit spots mentioned. It was very evident that these thrushes were, at least in that locality, better protected by the lighter color of the tail than if the latter were uniform in color with the back and wings, as in the Olive-backed Thrush.

Feeding.

It was half an hour after I entered my blind on August 2, before the young were fed, which was done by both parents. During the first hour, there were but three feedings and during the succeeding one and one half hours six feedings more. Sometimes twenty minutes elapsed between feedings, at other times but a moment. The average interval during my two and one half hours watching on this first day was sixteen and three quarters

minutes. This was undoubtedly much longer than normal and was due to the timidity of the birds, by reason of my blind. The parents were frightened away a number of times when approaching with food, but on the succeeding days were less timid, especially the female.

Twice on August 2, a parent visited the nest without the intention of feeding, a general inspection apparently being the sole object. On the two occasions on August 2, I thought feeding was accomplished by regurgitation, but at no succeeding time was there any semblance of this method.

It would have been much better could I have left my blind in position at the nest during my absence. However, to guard against the molestation of the nest, I deemed it advisable to remove the blind each day.

On August 3, I watched for three hours and twenty-two minutes, beginning at 12:10 P. M. The first feeding was given in eight minutes after entering my blind. On this day forty-three feedings were administered, which is an average of four and three quarters minutes between feedings.

Out of thirteen of these feedings, the parents on four occasions divided food carried at one time between two young, while each of the remaining nine feedings were administered to but a single bird. Not once, either on this or any other day, did I see three young fed at the same time.

On August 4, I watched from 11:38 A. M. until 1:07 P. M. During this period twenty feedings were given, which is an average of once in $4\frac{1}{2}$ minutes.

Three hours and twenty-five minutes were spent by me, between 11:50 A. M. and 3:15 P. M. on August 5, in my blind. But twenty-eight feedings were administered on this date; which was one feeding in $7\frac{1}{3}$ minutes.

During the first couple of days of my observations, I could only occasionally distinguish between the sexes of the parents. I later observed, however, that the spots on the breast of the male, which I positively distinguished by his singing, were slightly more intense and more sharply defined than on the female. On August 5, out of eight feedings, when I was sure of the parents' sex, six were administered by the male.

Many times it was impossible to detect the kind of food given to the young. I noted the following facts regarding this question: On August 3, a grasshopper was fed to the young on two occasions, and in both instances, the insect was divided between two nestlings. Twice a brown moth was fed to a single bird. That at least one of these moths was fed intact was demonstrated when the parent, in the act of transferring it to the young's mouth, dropped the moth within the nest, about which it fluttered until recaptured. On two occasions green caterpillars were given; at other times bunches of indistinguishable insects. This animal diet was occasionally varied by red wintergreen berries, which I saw given three times on August 3.

All food was, apparently, gathered within a very short radius of the nest, the parents, I should say, seldom being more than fifty feet distant.

Sanitation.

During my watch of three hours and twenty-two minutes on August 3, the young made their excrement ten times, which is approximately one fifth of the number of individual feedings. On August 4, four excrements were made in one and one half hours, which was also about one fifth of the feedings. On August 5, however, this ratio increased to one third, when there were ten excrements to about thirty feedings, during three hours and twenty-five minutes.

No nestling ever made its excrement, except immediately after being fed. After a parent had delivered food, it would remain for a few seconds by the nest to see whether a little bird showed a desire to make its excrement. If it indicated this desire, the parent with head lowered stood behind the nestling and received the excrement in its bill, before the former fell. To facilitate the handling of the excrement by the parents, the young generally bowed their bodies in the shape of a U, which brought both the head and the vent on a level with the rim of the nest. Twice, however, instead of assuming this position, I saw a nestling apparently stand on its head when voiding its excrement. Three times, during my days of watching, a parent was frightened away before

it could secure the excrement. Twice this lodged on the nest rim and once it dropped back into the nest. On the three occasions mentioned, each excrement was immediately removed upon the parent's succeeding visit.

Up to about noon on August 3, the excrements were, with one exception on August 2, swallowed by the parents; after this date, however, they were invariably carried away between the mandibles.

While the young lived within the nest, I observed that the excrement was enclosed within a gelatinous sac. I subsequently learned, upon the day after the young left the nest when one of the little birds voided its excrement in my presence, that the excrement lacked the gelatinous sac.

Call Notes.

A very interesting and instructive part of my experience with this thrush family was what I heard and learned relative to the birds' call notes, of which I distinguished five distinct kinds, in addition to the song of the male.

The first of these was the well known *quirk* or *quoit*, which is familiar to all acquainted with this species. This note was seemingly employed as a mild form of protest and was uttered when the birds were slightly suspicious or when they mildly protested against the presence of an intruder. A second note was a high pitched, thin and wiry call that was a counterpart of the Cedar-bird note. It was also I think, judging from memory, even more like a similar note that is much used by the Robin. This latter comparison is of special interest owing to the ancestral relationship existing between thrushes and robins.

I was one day fortunate in hearing a Cedar-bird and one of the parent Hermits give these similar notes at the same time and within a few feet of each other. The Hermits' note, although of the same quality as that of the Cedar-bird was pitched several tones higher than that of the latter. The Hermits used this thin wiry note as a warning to the young of approaching danger. To the little birds this call meant "freeze." On the last day of my observations, I had two good opportunities of witnessing the use of the call note in question. On one occasion both parents were

out of sight and the young were uneasily testing their growing strength by moving about the nest, spreading their wings, stretching their legs and opening wide their mouths. Suddenly, from the adjacent swamp, came this wiry note of warning. Instantly, the three young closed their conspicuous yellow lined mouths, dropped to the bottom of the nest and remained motionless. Later that day I again saw the same thing repeated.

A third note, which this pair of Hermits used signified extreme distress. This note sounded to me much like the note of a hoarse Canary. I can best describe it by the word *boyb*, spoken slowly and with a rising inflection. The note also reminded me of the mew of a kitten. *Boyb* was uttered by the thrushes with the mandibles well open, whereas their Cedar-bird call was made with the mandibles almost closed.

Besides the three notes described, there was a much used conversational note that evidently contained no implication of suspicion or trouble and was in strong contrast with the several notes already described. It was an exceedingly soft and sweet little note that could be heard but a few feet, and which I can best describe by *wee*. *Wee* was used by the parents to each other and to the young. It seemed, however, to be mostly employed to herald to the young the parents' approach with food. At a distance of six or eight feet from the nest a single *wee* from a parent would announce to the young the former's proximity. As the parent hopped closer, the *wees* were rapidly repeated, *wee-wee-wee-wee*, and the nearer the parent came to the nest, the softer the *wees* were uttered, until they were faint whispers. To these *wees*, the young responded, during their first days, by erecting their heads and opening wide their mouths; but later, when they became more mature, they would rise to their feet upon hearing the first *wee* and energetically beg for food. *Wees*, however, were not always uttered when the parents approached the nest. Sometimes, when everything seemed to be running smoothly, the parents came and went in complete silence.

The fifth, and only remaining note, was one I heard but twice and both times it came from the male. It was an indescribable explosive twitter of ecstasy made with fluttering wings. I first heard it on August 3, immediately after the male had been singing

for four minutes. On another day, it was uttered in the presence of the female, who was close by and towards whom it was directed.

Singing.

Each day I was at the nest, the male Hermit sang. A particular limb in a dead pine, fifteen feet distant, was the favorite perch for his exquisite performances. The first time I heard him from this limb, I thought it was another bird far back in the woods. With the assistance, however, of a pair of 8-power prism binoculars, which brought the Hermit within an apparent distance of about two feet, I could plainly see the feathers of his throat vibrate coincidentally with the singing. There was little if any movement of the mandibles and the notes were muffled or hummed, instead of being poured forth from well opened mandibles in a volume that carries far. I believe this explains the remarkable and well known power as a ventriloquist of the male Hermit, by whom I was deceived, even when looking directly at the singer in a good light and fifteen feet distant.

The male Hermit sang daily until August 7, when my observations ceased, and it sang during all hours of my presence. These song periods varied from a few seconds to six minutes duration, and this longest period was at noon on August 4. Almost all the singing was, however, so low and soft that it could be heard only at close range.

Development of Young.

The little Hermits were 6 or 7 days old on August 2, when I commenced my observations. They then kept their eyes closed almost constantly and seldom moved, except while being fed or during the few seconds immediately following feeding, when they would move their bodies, stretch their wings and then settle quietly down. At this age the young seemed occasionally to tire of their customary sitting posture and once on August 2 I saw one young bird rest on its side with one foot in the air, as high as the heads of the other little birds. On this same day, I also noticed one young picking at his half grown pin feathers. Towards evening

on August 2 it commenced to rain, but the rain did not last long and no brooding of the young was done. Several times during each bright day, the sun shone directly on the nest. During these periods, some of which lasted twenty minutes or more, the young seemed to suffer. Twice on August 2 the female brooded, once for eight minutes, but the latter was the last brooding I observed. Preceding each of the broodings mentioned, the female straddled the nest and seemed to burrow between the young. The explanation of this action I was unable to definitely discover. Possibly, however, the bird may have been loosening the packed down pine needles lining the nest bottom, in order to secure better air circulation. Throughout the eight minutes of brooding by the female, the male sat on his favorite perch in the dead pine, with food for the young in his bill.

The young were 8 or 9 days old on August 4 and showed marked development over the day before. When I approached the nest the little fellows hissed at me. During the parents' absence, the nestlings also kept their eyes open much of the time, whereas, on the day before, they kept them closed. They also exhibited considerable activity on the 4th, picking their feathers and stretching their wings. On this day, I also noticed that the young for the first time rested their heads on the rim of the nest.

On the day following, August 5, the dark tips of the feathers forming the spots on the breast and the little bright cinnamon tail feathers showed very plainly. I also observed, for the first time, one of the young erecting his crown feathers. Two of the young also stood on their legs in the nest and stretched their wings, one flapping his wings.

Heretofore, the young, while in repose or sleeping, during their parents' absence, kept their heads straight in front, but on August 5 I saw one young bird rest its head on or behind its wing while sleeping.

August 6 was hot and sultry with a south wind. On this day, the young clamored for food by squeaking, when the parents approached within six or eight feet of the nest, and, as they came nearer, the little fellows rose to their feet and with necks craned forward, received their rations. The attitude of the parents toward the young likewise changed on this day, for, instead of

hopping along the ground for the last six or eight feet, when approaching the nest, as was invariably done during the first days, they now flew direct to the nest.

I was much interested in watching the attitude of the parent Hermits towards other animal life during my period of watching. A neighboring chipmunk was chased daily and upon one occasion was put to rout three times within ten minutes. No attention by the Hermits was paid to the proximity of Chickadees or a Purple Finch. Neither at another time did one of the parents, which I was watching at the nest, exhibit any apparent concern, when a Northern Raven flew low over the nesting site.

The greatest exhibition of anxiety made by the Hermits toward any wild creature, during my entire watching, was on August 6 when there was much excitement, which lasted for a half hour, in the thicket just back of my blind. During this time, all feeding by the parents was suspended and the thrushes constantly uttered their several alarm notes, changing from one to the other at intervals. In these protestations the thrushes were joined by a sympathetic flock of Chickadees. An investigation by me of the source of the trouble disclosed, to my surprise, a Flicker leisurely feeding on the ground.

Towards evening of August 6 it was apparent to me that the time for the young to leave the nest was close at hand. I, accordingly, decided to secure, before it was too late, some portraits of the young that would show their development. This process brought to a close the life in the nest, as the young birds would not remain in their nest after being temporarily removed.

The next morning when I returned I found the site deserted and even though I took up my watch within the blind, yet no sight nor sound of any Hermit did I have. I later located one young thrush in the following manner, which I believe would prove an excellent method for others to adopt when desirous of finding hidden nests or young birds: I hunted around in the adjacent swamp until I heard the familiar Canary-like *boyb* note of a parent Hermit. This note was kept up until I retreated from the spot, when the male changed from the *boyb* note to his Cedar-bird like call. This indicated to me that I was very near the young. Accordingly, procuring my blind, I hastened to the spot where I

heard the distress calls, which was about 100 feet from the nest, and there went into hiding. At the time there were three adult hermits together. After ten minutes silence, I began to hear occasional faint little "peeps," which it was impossible to locate precisely. Presently, however, one of the little thrushes appeared from hiding and began to hop along the ground and fallen logs and to climb through the underbrush. Now and then the little fellow would fly two or three feet, from twig to twig, all the while pumping up and down his little cinnamon tail, so characteristic of all adult Hermits, and giving voice to an occasional "peep" for food. But when it received food from a parent, no sound was uttered by the young bird, neither did the parents use the *wee* note. Though I made a search of the vicinity the following morning, August 8, I could find no trace of the Hermit family.

WILD LIFE OF AN ALKALINE LAKE.

BY FLORENCE MERRIAM BAILEY.

THE few lakes of the arid region are peculiarly interesting as they attract hordes of migrating water birds that pass over the wide stretches of dry land, while affording nesting sites for many resident water birds, and feeding grounds for both birds and beasts of prey. A series of alkaline lakes in northern New Mexico near the continental divide was once visited by us during a fall migration and although we were unable to take a census of the water-fowl gathered there we had a most interesting experience.

The largest and most thickly populated of the lakes had been named from a sulphur spring with frank, western realism — Stinking Spring Lakes. From long and bitter experience with alkali we took warning from the name and stopped before reaching them to fill our canteens and water keg at a spring of less noisome reputation, where we found a like-minded Mexican boy with three burros, filling his kegs for a sheep camp.

The first lake on the road, reached just at sundown, suggested

a turquoise with a raised setting, being a round body of beautiful blue water lying between the cliffs of a cañon. Along its margin ducks were feeding but there was no protecting cover for a collector, and although one of the party crawled toward the birds with a disguising bunch of weeds on his hat, before he was within range they splashed off, rising heavily, and after flying around in close flocks like swarms of insects on a summer day disappeared through the yellow haze of the cañon gateway like a wedge of light. As we followed in their direction the cañon widened out to a great sagebrush basin with a rim of yellow pines. In the bottom of the basin lay the main lake, an irregular body of water about four miles long and in places a mile wide. Its shore as far as we could see was bare of cover and had a wide marginal mud flat bad for working purposes, so when we came to a small tule-bordered lake separated from it by a low ridge with passes, we promptly camped in an adjoining side gulch. Here to our surprise, we found sheltering cottonwoods, watered by the seep from the mesa, high untouched grama grass for the horses, and actually fresh rain water pools, after which the spring water which we had thought ourselves fortunate to get on the way seemed impossibly alkaline.

The tule-bordered lake was connected by a narrow channel with a bare lake at the end of which were several acres of low half submerged brown weeds that, while offering no cover to enemies afforded protecting shelter and a rich feeding ground to visiting ducks. Its advantages over the tule lake, from the birds' point of view, were demonstrated the morning after our arrival. As we came in sight of the tule lake Mr. Bailey stuck a high weed into a sagebrush and, gun in hand, crouched behind the screen while I sent stones splashing among the tules. Do my best, nothing would rise. As I walked on toward the bare lake, however, the instant my figure was sighted above the sagebrush there was a thrilling roar, and a great multitude of ducks rose from the concealing weedy border in which they had been feeding. Breaking up into flocks they circled and then rose and flew in black lines through the low passes of the sagebrush ridge to the main lake.

This experience determined our method of work. We wasted no more time at the tule lake unless in passing we chanced on some

stray bird that we wanted, when it was shot from the tule screen, though the water was cold and so deep that it was necessary to swim for one's game. Our work lay at the feeding ground and in the passes. The passes were a simple matter, for while Mr. Bailey lay in ambush in the sagebrush I went down to whichever lake promised best and by a series of rifle shots kept the black hordes moving across the passes. The only difficulties here were that a corps of men was needed to guard the crossings and that we were without duck shot — empty cartridges of former hunters strewing the ground pointed our discomfiture, for our ammunition was too light to penetrate the thickly padded bodies at their flying height. Work at the feeding ground on the other hand was difficult because of the lack of cover. We could not hope for a census of the water-fowl of the lake, but would do our best to get an idea of the most abundant species.

The excavated blinds that we discovered along the lake had been turned into wells by the recent rains and a brush blind was at best a suspiciously conspicuous object. It was our only hope, however, so gathering branches of sagebrush and greesewood, *Atriplex*, we stuck them into the ground, adding a row of white-seeded weeds that grew along the water's edge to give the touch of nature of which we were so sorely in need. While we were at work on the house no water birds came near the lake, but Bluebirds and a flock of Pipits, now down from the mountain tops making their southward journey, flew around among the surrounding brush and weeds.

When all was ready we entered the blind and after waiting quietly for some time with heads bent low under the screening aromatic branches, through the chinks we saw the ducks begin coming back to the lake. Then we would hear the whistling of a flock rushing through the air overhead, and after time enough for the birds to circle around the lake would hear a splash from those that plumped down and a seething sound from those that slipped in more quietly. If a heavy swish of wings made us give a guarded sidelong look upward we might see passing swiftly over a flock of from four to fifty ducks whose long outstretched necks made their wings seem short and set back on their heavy bodies. Teal and Gadwall were most abundant but Baldpates were also numerous,

and one company of long-necked Pintails, and two of Shovellers were noted. If a flock suspected our blind it would circle around and around overhead to inspect us. But as we made no sign, content for the time to watch through our field glasses, the lake gradually filled, becoming a busy place. Big Mallards or quiet and gently talkative flocks of little Teal would swim into the flooded weedy bottom to feed on its rich store of seeds, while other ducks splashed down in the middle of the lake to swim around in the open and feed on seeds of pigweed and smartweed under the surface.

In feeding the ducks would tip over on their bills leaving only their tails visible above the water. Three tails that we saw sticking up in a row above the water suggested a generalization on the directive value of the strikingly marked under tail coverts of ducks, for they might well serve as flags for the members of the fleet, and point to good feeding grounds. In the adult male Mallard black tail coverts and white tail quills were made more spectacular by the bright red feet that also stood in air.

To vary the monotony of swimming and standing on their bills, the birds with appetites appeased would preen their feathers or rise and stretch their necks and flap their wings. Two female Gadwalls out in the weeds with nothing better to do came to blows, twisting each other around by the bill in genuine pugilistic fashion. Once a big flock of Teal came rushing noisily out of the weeds followed shortly by a Marsh Hawk. Crows cawing over the lake were enough to raise a disturbance. But though the vast throngs were easily unsettled, if nothing came of it they circled around and settled back again. Sometimes they discriminated nicely, for when a Golden Eagle beat slowly down the lakes, though a few ducks went splashing away, most of them paid little or no attention to him and he went on quietly, lighting unobtrusively on a stub to be attacked by an abusive, indiscriminating Magpie.

Our blind was a success in enabling us to get a good general idea of the life on the lakes but too conspicuous for the birds to come within range in broad daylight—it was evident that we must enter it before sunrise and shoot at dawn. So although loath to disturb the happy water-fowl gathered on their feeding ground

we came out of our brush house and started home. The wind was blowing hard and on the tule lake the coots were huddled in black masses or snugly riding the waves with a great show of bobbing. During the day a variety of birds were seen in the surrounding country which included open plains, juniper orchards and yellow pine woods, sandstone ledges, bottom lands and marshes that attracted in turn Marsh Hawks, Killdeer, Meadowlarks, Rock Wrens, Woodpeckers, Jays — crested and uncrested — Solitaires, Kinglets, Western Chipping Sparrows, Chewinks, Goldfinches, Mourning Doves, and Horned Larks.

That night with our early morning hunt on our minds we woke at intervals mistaking the moonlight for dawn, and by 4.40 with blankets wrapped around us and guns in hand were starting for our blind, an almost imperceptible line of light in the east telling us that we were just on time. As we stumbled over the stony trail along the cliff on our way to the lake our horse bell jangled drowsily, and an owl hooted; while across the big lake a sheep bell tinkled, and from the moonlit hills came the yapping of coyotes. As we rounded the corner of the tule lakes the Coots cackled, making us turn off through the sagebrush to stop their telling tales. By a long detour, picking our way through sagebrush interspersed with cactus, our blanketed figures casting accompanying shadows in the moonlight, we finally came to the shore. The moon was partly obscured by clouds and we crept silently toward our blind, but nevertheless the nearer ducks saw us and with a disheartening roar flock after flock arose.

Once inside we straightened up the bushes, drew our blankets close around us, for the water gave the air a penetrating chill, and settled ourselves for an hour of waiting. As we got colder and more cramped a band of light grew in the east till at last it was reflected in the lake, the stars faded out of the sky, and the dark vault began to lighten. Meanwhile the ducks gradually returned and those that lit down the lake under cover of the dim light swam up so close that by peering through the chinks in our brush screen we could distinguish the species, making it unnecessary to shoot. An old Mallard feeding in the weeds with the Green-winged Teal acted as a good decoy, her barnyard *quack* calling her friends; but though the thin slazy note of the male answered her, he would not join her.

When the sky had lightened to blue a faint white mist rose over the cold water. On the previous morning the ducks had been seen lined up along the shore sunning themselves in the first light, but though we hoped they might come again, our brush house prevented. When it was light enough to see the sights of the gun it was time to shoot — alas for the necessity! At the first report the whole lake seemed to rise, and after the last shot not a duck was left, the vast multitudes having crossed over the passes to the main lake. If we would get any more we must follow them. Collecting his few specimens Mr. Bailey climbed a pass while I went down to the shore of the large lake with the rifle to start up the birds again. From a stretch of weedy shore where there was not a duck in sight, at the shot myriads arose. They formed in compact flocks and started off, most of them in their alarm following down the expanse of the larger lake, a few coming back over the pass. Once at a startling rush of wings I looked up and saw a flock descending with a speed that almost took my breath away. A few moments later there was a sudden whistling overhead and — a band of white forms vanished as they came. Were they Whistlers? We had added several species and a few desirable specimens to our list by our early rising, but best of all we had shared the beauty and life of the lake at dawn, and now turned homeward with a sense of rare enrichment.

After our experience with the vast throngs of excitable migrating water-fowl, breaking away with a roar if a crow cawed, rising in thundering multitudes if a gun went off along shore, it was a grateful relief to come back to the tule-bordered lake where the phlegmatic Coots and Ruddy Ducks were at home on their breeding grounds, and the tules were full of happy songsters. In the early morning sunshine the chattering, rattling songs of merry Marsh Wrens bubbled over all down the tule line as we passed, a little brown form appearing for a moment in explanation of a shaking tule, a white spot at the base of a stalk proving the breast of a watchful wren, or a brown flash from the weeds under our feet telling where a hungry mite was breakfasting — while other brown merry-makers went on gaily scraping their fiddle strings. Glimpses of brown forms a size larger clambering around among the tule stems went with the thin chip of the Lincoln's Sparrow

or the rich, honest call note of the Song Sparrow. In a fortunate moment we got a flash of color from a sprightly Yellow-throat. More frequently from the tules we flushed the quaint Carolina Rails that slanted up with droll, heavy-bodied, short-winged flight, to speedily drop down losing themselves among the myriad stems of their safe cover. When surprised in the yellow-green weeds outside the tules they buzzed back to them before our eyes. When a gun went off near one it would give a shrill scream, and during the mornings their strident laugh was often mingled with the talk of Coots and the quacking of ducks.

As we walked along behind the tule hedge a confusion of most remarkable sounds came from the tules where invisible Coots were swimming about — coughing sounds, frog-like plunks, and a rough sawing or filing *kuk-kawk'-kuk, kuk-kawk'-kuk*, as if the saw were dull and stuck. Often there was just a grating *kuk-kuk-kuk-kuk-kuk-kuk*. But all the mixed medley had the sound of good fellowship, and, too, an open fearless disregard of who might be passing the other side of the tule screen — for who wanted Coots? Glimpses of open water showed the whole surface of the lake dotted with moving forms, and in the cool crisp morning air while the water at the foot of each tule was sparkling, every duck on the lake made a glistening point of light. The oval slaty Coots with black necks and white bills before them sat the water like toy ducks, diving and swimming about making intersecting wedge-shaped wakes; while the chunked little Ruddy Ducks, the males with handsome ruddy bodies, sat with spread fantails sticking straight up, often with their stocky heads over their shoulders so the clear white cheek patches showed across the lake.

Downy young Ruddies were seen swimming around among the tules with their parents although it was September, and half grown birds were among the groups of Coots. Redheads had also probably bred in the tule lake for they were often seen with the Coots and Ruddies feeding out in the deep water where the pond weed, *Potamogeton*, grew under the surface. As we walked around the lake all the migrating ducks flew before us, but the Redheads would gather with the Coots and Ruddies, the dark horde merely shifting as we did from one end of the lake to the other. If hard pressed the screaming Coots would go splashing across the water

kicking and slapping it white with their feet, but the Redheads, sometimes even when shot at, would merely tip over on their bills and disappear.

In the midst of this dark horde of Coots, Ruddies, and Redheads — phlegmatic, fat, slow-moving — there suddenly appeared three spirit-like Phalaropes with white breast and slender shining white throat; delicate, exquisite, vivacious creatures, facing quickly from one side to the other, bending their beautiful necks to reach some floating morsel — swimming, darting over the water — their heads moving like doves as they went. They were seen swimming about the lake for two days but then followed a day of cold rain and they disappeared, doubtless continuing their southward journey. A few traveling Grebes also made short stops at the lake on their way south.

The same storm that drove the phalaropes south and which whitened the Colorado mountains north of us brought big flocks of blackbirds, Brewer's and Red-wings, to the lakes. We found them going to roost one night. The sun had already dropped out of sight and the darkened hills behind the lake were edged with yellow under a delicately flushed sky, the picture being reflected in the lake below; while long, insect-like strings of ducks were passing to their nightly feeding grounds and dark forms whistling by overhead. As we rounded the tule lake on our way to camp several large black flocks swung around close in front of us, dropping down among the tules and settling themselves noisily for the night. Migrants of all kinds were now on the wing. Before the cold storm a flock of about a hundred of the cliff-dwelling White-throated Swifts had been seen flying south high over the lakes.

The myriads of birds that gathered at these lakes naturally attracted hawks and owls and predatory mammals. In walking along shore we followed tracks of foxes and lynx, and fresh deep footprints of coyotes around the tules. Holes dug by skunks and badgers for beetles, gophers, and kangaroo rats were also found; the holes and mounds of the small mammals on the shore and on the sagebrush ridges. Trapping brought good results here, two coyotes, two badgers, and four skunks being taken, besides gophers, wood and kangaroo rats, and smaller game.

When trapping for the mammals we scared up the birds of the

brush. Western Savanna Sparrows flew shyly before us from sagebrush to sagebrush, Sage Thrashers disappeared with long low flights over the bushes, and at one time a Sage Sparrow led us a chase. Along the weedy lake border a Shrike and a flock of Longspurs were seen, and on the shore of the main lake one evening a buffy immature Mountain Plover was taken near where a flock of sandpipers were feeding. Across the width of the lake Mr. Bailey detected the honking of Canada Geese, and afterwards was fortunate enough to see five of the splendid great birds feeding at the foot of the lake. A beautiful Ring-billed Gull was also seen there. Though less interesting than our small lakes, this great lake, where these noble birds felt secure, had a charm of its own with its wide shore line, its broad expanse—for in arid New Mexico it seemed a veritable Ontario—and its ever-shifting, broken lines of water-fowl. Its shore in the late afternoon when the hills to the south were dark purple was flooded with slanting yellow light, and as the sandpipers were peeping and making short skimming flights along the beach, the marginal weedy border glowed a vivid yellow-green and the sagebrush hills behind were lit up till we looked upon a glowing golden shore. It was one of the moments that one could imagine feathered wanderers from home might remember, one of the moments that earlier in the year move enraptured birds to outbursts of ecstatic song.

But some birds' flights of fancy, it would seem, are not controlled by the almanac, for on one of our most autumnal mornings before my bewildered vision a Raven, a most matter-of-fact bird one would suppose, rose circling into the air higher and higher till its big black form began to grow small; as it rose, uttering a low rhythmic croaking, most vernal in its enraptured suggestion.

The lakes with their strongly alkaline water were of little interest to some of the birds. A passing kingfisher whom we discovered one morning on a dead tree above the tule lake looked sadly out of place and, we fancied, rattled disconcertedly. In any case, before night the poor disillusioned wanderer, as if reduced to extremity, was perched on a tree over our muddy camp rain pools! The next morning he was nowhere to be seen.

Small and muddy as our pools were they not only afforded water for ourselves and the thirsty horses, but for flocks of passing land

birds not addicted to mineral water. Rich dark Bluebirds, the Chestnut-backed, in their fresh fall dress drank from the pools and perched in the pine trees, a large flock of Robins came flying into our sunlit cottonwoods one morning, and for two days a flock of cheery Siskins drank and bathed in the pools and sang in the sunny tree tops above them. House Finch notes were heard and Audubon Warblers were seen dashing about as distractedly as ever, Chickadees and Pygmy Nuthatches were in the cottonwoods, and Juncos hunting over the ground, while Pileolated Warblers delighted our eyes by flashes of gold among the bushes. Magpies were often seen of a morning sitting in the sun talking and half singing a contented warble.

All these birds belonged to the day shift, but at sunset the night shift of owls began work. On a tree overlooking the tule-bordered lake we found a Great-horned Owl just waking up for his day's work when night was coming on, the sky behind the black hills having deepened from yellow to orange, the water in the lake having the cold steely light of night, only a touch of sunset warmth being left in small rosy cloudlets mirrored on the surface. One of the large nocturnal hunters visited our camp. His scream was heard from the cliff above us when, having hunted in the passes for the sunset shift of ducks, we were eating a belated supper. As we raised our eyes he came flying over on great widespread wings, lighting almost above our heads in a big cottonwood whose trunk stood out black against the rich yellow sunset light; and there he sat like a black statue, his dark body and high ears against the yellow sky, screaming in falsetto while we gazed at him. Discovering us, he retreated a little, but attracted it may be by our blazing camp fire lingered near. Indeed, camp had become quiet for the night before his cry, the falsetto scream so often attributed by terrified campers to the mountain lion, growing fainter and fainter died out in the distance. At another camp at dusk we caught sight of one of the Great-horned Owls perched on the mast-like top of a dead pine. As he hooted, he tipped up his tail and dropped his wings, making a most animated figure. Still another of the owls was discovered one night facing the rising full moon. Did he prize it for his work, we wondered, as did other mammalogists?

SOME EARLY RECORDS OF THE PASSENGER PIGEON.

BY ALBERT HAZEN WRIGHT.

THE publication of this paper is suggested by the present general interest in the status of the Passenger Pigeon awakened partly by the appearance of Mr. W. B. Mershon's recent volume ¹ and partly by the numerous rewards now offered for the discovery of living representatives of the species. The records were gathered as a "by-product" incidental to an inquiry into the primitive fauna of Central New York. From the local nature of this inquiry and the writer's lack of familiarity with purely historical literature and methods this compilation is necessarily incomplete. It is hoped that wider and fuller inquiries may be made by others. The writer is greatly indebted to the officials of the Cornell University Library for aid in utilizing the rare collections of Andrew D. White, Jared S. Sparks and Goldwin Smith. And lastly my especial acknowledgments are due Prof. Burt G. Wilder for kindly advice and criticisms.

Naturalists are prone to complain because the voluminous records of the Jesuits in New France are so crowded with their hopes, their struggles and the detailed descriptions of individual conversions, while only occasionally does an observant father remark upon the natural objects at his very hand. Still, taken altogether they furnish considerable information.

In their very first Relations, 1610-1613 (Acadia), they mention the great abundance of pigeons as the present note will indicate:²

"The birds are fully as abundant as the fishes. During certain months of the year the pigeons sally forth from the woods into the open country in such great numbers that they overload the branches of the trees. When they have settled upon the trees at night they are easily captured and the savages heap their tables with royal abundance."

In Huron folklore pigeons entered, as Le Jeune, 1636, shows:³

¹ The Passenger Pigeon. New York, 1907.

² Jesuit Relations and Allied Documents. By R. G. Thwaites and others, 1896. Vol. I, p. 253.

³ *Ibid.*, Vol. X, pp. 143, 287.

"At the feast of the Dead, which takes place about every twelve years, the souls quit the cemeteries, and in the opinion of some are changed into Turtle doves (*possibly our mourning doves*), which they pursue later in the woods, with bow and arrow, to broil and eat." According to Lescarbot, 1612 (Acadia), a dying Indian chief named Martin,¹ "when the Patriarch and a man named de Montfort had caught him, and made him eat some wild pigeon, which he liked very much, he asked them as they were speaking to him about Heaven, if there would be any wild pigeon there." In other instances, pigeons served as gifts to sick, as² "Monsieur de Repentigny, his Godfather, visited him often in his sickness, and sent him sometimes a few eggs, sometimes some Pigeons," Or, as frequently, the fathers themselves received them from the officials, as,³ "There were sent us by Monsieur the Governor, . . . 8 young pigeons;" And again, in their Journal for 1646 they record that⁴ "On the 3rd or fourth of January, Monsieur the Governor sent 6 . . . pigeons."

The early fathers noticed their seasonal appearance. Le Jeune, 1637, likened the Savages to the pigeons.⁵ "Our Savages are always savage, they resemble the migratory birds of their own country. In one season turtle doves are sometimes found in such abundance that the end of their army cannot be seen when they are flying in a body; at other times in the same season they appear only in small flocks." One father (Relations of 1656-57) in particular considered this migration one of the three remarkable facts of natural history in America.⁶ "The second [fact] is, that, in the Spring, so great numbers of Pigeons collect around these salt-springs, that sometimes as many as seven hundred are caught in the course of one morning." The same observation held for Montezuma (Cayuga Lake), 1671-72⁷: "Four leagues from here (*Cayuga mission*) I saw by the side of a river, within a very limited space, eight or ten extremely fine salt-springs. Many snares are

¹ Jesuit Relations, Vol. II, 155.

² *Ibid.*, Vol. XII, p. 65. Le Jeune, 1636 (Quebec).

³ *Ibid.*, Vol. XXX, p. 153. (1647.)

⁴ *Ibid.*, Vol. XXVIII, p. 145.

⁵ *Ibid.*, Vol. XI, p. 81.

⁶ *Ibid.*, Vol. XLIII, p. 153. (Onondaga Lake.)

⁷ *Ibid.*, Vol. LVI, p. 49.

set there for catching pigeons, from seven to eight hundred being often taken at once."

Of the abundance of pigeons Vivier among the Illinois writes as follows:¹ "During a portion of the autumn, through the winter, and during a portion of the spring, the country is overrun with swans, . . . wild pigeons, and teal." Gravier on his voyage through the Mississippi valley in 1700 says:² "We saw so great a number of wood-pigeons that the sky was quite hidden by them." Or, early in 1616 Biard in Acadia says,³ "there are a great many wild pigeons, which come to eat raspberries in the month of July, . . ." And, lastly, the Relations of 1662-63 give in some detail the pigeons of the St. Lawrence county.⁴ "Among the birds of every variety to be found here, it is to be noted that Pigeons abound in such numbers that this year one man killed a hundred and thirty-two at a single shot. They passed continually in flocks so dense, and so near the ground, that sometimes, they were struck down with oars. This season they attacked the grain fields, where they made great havoc, after stripping the woods and fields of strawberries and raspberries, which grow here everywhere underfoot. But when these Pigeons were taken in requital, they were made to pay the cost very heavily; for the Farmers, besides having plenty of them for home use, and giving them to their servants, and even to their dogs and pigs, salted caskfuls of them for the winter."

Besides the foregoing citations there are among the Jesuit Relations some three or four stray notes of hunting pigeons, the most important being in Marquette's Journal (Illinois) where he records⁵ that "we killed 30 pigeons, which I found better than those down the great river; but they are smaller, both old and young."

In New England, only shortly after the Jesuits began to record the wild pigeon, do we find the first account of this species. A Mr. Higgeson in 1629 writes of them as follows:⁶ "In the winter

¹ Jesuit Relations, Vol. LXIX, p. 145.

² *Ibid.*, Vol. LXX, pp. 109, 111.

³ *Ibid.*, Vol. III, pp. 81, 83.

⁴ *Ibid.*, Vol. XLVIII, p. 177.

⁵ *Ibid.*, Vol. LIX, p. 181.

⁶ Higgeson, Mr. New England Plantations. Written in 1629. Mass. Hist. Soc. Colls., Vol. I, p. 121.

time I have seene flockes of pidgeons, and have eaten of them: They doe fly from tree to tree as other birds doe, which our pigeons will not doe in England: They are of all colours as ours are, but their wings and tayles are far longer, and therefore it is likely they fly swifter to escape the terrible hawkes in this country."

Not long after John Josselyn gave us a better account:¹ "The *Pidgeon*, of which there are millions of millions, I have seen a flight of *Pidgeons* in the spring and at *Michaelmas* when they return back to the Southward for four or five miles, that to my thinking had neither beginning nor ending, length or breadth, and so thick that I could see no Sun, they join Nest to Nest, and Tree to Tree by their Nests many miles together in Pine-Trees. But of late they are much diminished, the *English* taking them with Nets. I have bought at *Boston* a dozen of *Pidgeons* ready pull'd and garbidgd for three pence."

In 1649 in "A Perfect Description of Virginia, etc. London," (p. 17) "Pidgeons" occurs in the list of birds. Of the same region, "A True Relation of Virginia and Maryland, etc. By Nathaniel Shrigley, London, 1669" (p. 4) says that "Fowle naturally to the Land are Eagles....Turkies,....Pidgions,....and many sorts more." Just preceding LaHontan, Thomas Budd in 1685 in his "Good Order Established in Pennsilvania and New Jersey in America" (New York ed., 1760, p. 36) remarks that "The Woods are furnished with a store of Wild Fowl as *Turkeys*,.... *Pidgeons*, etc."

The celebrated LaHontan, in a letter dated at Boucherville, May 28, 1687, writes of the pigeons as follows:² "In a word, we eat nothing but Water-fowl for fifteen Days; after which we resolv'd to declare War against the Turtle-Doves, which are so numerous in *Canada*, that the Bishop has been forced to excommunicate 'em oftner than once, upon the account of the Damage they do to the Product of the Earth. With that view, we imbarqued and made towards a Meadow, in the Neighborhood of which, the Trees were cover'd with that sort of Fowl more than with Leaves: For just then 'twas the season in which they retire from the North Countries, and repair to the Southern Climates;

¹ Josselyn, John. *An Account of Two Voyages to New England Made during the Years 1633, 1663*. Boston, 1865, p. 79.

² LaHontan, *New Voyages to North America*, Vol. I, pp. 61, 62. London, 1703.

and one would have thought that all the Turtle-Doves upon Earth had chose to pass thro' this place. For the eighteen or twenty days that we stay'd there, I firmly believe that a thousand Men might have fed upon 'em heartily, without putting themselves to any trouble." In two other places¹ does he mention them; in the latter instance, to include them in his "List of the Fowl or Birds that frequent....Canada"; and in the former, merely to note that "the Turtle-Doves had all passed over the place, in quest of their Southern retreats,...."

In the same year (1687) Richard Blome in his "The Present State of His Majesties Isles and Territories in America," published in London, enumerates the wild pigeons in four places. In New Jersey (p. 80) he says, "The Counterey is well stored with *Wild Deer*,and wild fowl of several sorts; as Turkeys, Pigeons.... in great plenty." In Pennsylvania (p. 94), "Of Fowls of the Land there is the Turkey....Pheasants;....Pigeons....in abundance." In Virginia (p. 189), "They have great plenty of Fowl; as.... Pigeons,...." And finally, comes an isolated note (p. 252), "Then there is the Wood Pigeon;...."

The year following (1688) Mr. John Clayton speaks of the almost incredible stories he has heard about the pigeon. He says,² "Their Turtle-Doves are of a duskish blue Colour, much less than our common Pigeon: the whole Train is longer much than the Tails of our Pigeons, the middle Feather being the longest. There is the strangest Story of a vast Number of these Pigeons that came in a Flock a few Years before I came thither; They say they came thro' *New England, New York and Virginia* and were so prodigious in Number as to darken the Sky for several Hours in the place over which they flew, and broke massive Boughs where they light, many like things which I have had asserted to me by many Eye-witness of Credit, that to me it was without doubt, the Relators being very sober Persons, and all agreeing in a story: Nothing of the like ever happen'd since, nor did I ever see past ten in a Flock together that I remember. I am not fond of such Stories, and had suppressed the relating of it, but that I have heard the same from very many."

¹ *Ibid.*, pp. 63 and 237.

² Clayton, John. A Letter from Mr. John Clayton to the Royal Society May 12, 1688, Giving an Account of several Observables in Virginia, etc., p. 30.

In 1698, Hennepin, the first to describe Niagara Falls, says¹ the lower Mississippi "Country affords all sorts of Game, as Turkey-Cocks, . . . , and Wood Pidgeons; . . ." And, on his return eastward from Niagara he says, "We had still Fourscore Leagues to go upon the Lake *Ontario* before we cou'd arrive at Fort *Catarokouri* or *Frontenac*; . . . We wanted then neither Powder nor Shot, and therefore shot at random all that we met, either small Birds, or Turtles, and Wood-Pigeons, which were then coming from Foreign Countries in so great Numbers, that they did appear in the Air like Clouds."

This same year (1698), Gabriel Thomas in "An Historical and Geographical Account of the Province and Country of Pensilvania and West New Jersey in America. London, 1698," finds (p. 13) "in (the) place there are an Infinite Number of Sea and Land Fowl, of most sorts. viz. *Swans*, . . . *Pidgeons*. . . ."

Three years later Charles Wolley in "A Two Years Journal in New York. London, 1701," (New York ed., 1860, p. 37) practically repeats the same observation, namely, "They have great store of wild-fowl, as Turkeys, . . . *Pigeons*, . . ."

Some time passes before we come to Daniel Coxe's "A Description of the English Province of Carolina, etc. London, 1726" where we have the following (2nd edit., p. 79): "Great companies of Turkeys, . . . *Pidgeons*, . . ." Again in 1732, "A Letter From South Carolina, etc.," speaks much to the same effect (2nd edit., London, p. 13): "There are . . . great variety of Wild-Fowl, as Turkeys, . . . wild *Pigeons*, . . ."

In 1744 Charlevoix in his History of New France enumerates the wild pigeons as occurring in Florida² but only once,³ speaks of them in detail. "The pigeons are there (New France), as elsewhere, birds of passage. A missionary observed, in an Iroquois canton, that every morning, from six o'clock till eleven, the air above the gorge in the river, about a quarter of a league wide, was seen to be completely darkened by the number of these birds; that afterwards they all descended to bathe in a large pond near

¹ Hennepin, L. A New Discovery of a Vast Country in America, etc. London, 1698, pp. 137, 225.

² Charlevoix, Rev. P. F. X. De. History of New France, 1744. Translated by J. G. Shea. New York, 1866. Vol. I, p. 140.

³ *Ibid.*, Vol. II, p. 192.

by, and then disappeared. He adds, that only the males are then seen, but that the females come in the afternoon to go through the same manoeuvre."

On his journey from Pennsylvania to Owego, John Bartram in 1743 found north of Oswego, N. Y. ¹ "all the trees were crouded with wild pigeons, which, I suppose, breed in these lofty shade trees."

Shortly afterwards Peter Kalm, a Swedish naturalist, spent three years in travel in North America (1747-1750). In his "Travels into North America" he twice speaks of the wild pigeons. First during October, 1748, he observes ² that "In the same manner I have seen *wild Pigeons*, which were made so tame as to fly out and return again. In some winters there are immense quantities of wild pigeons in *Pensylvania*." The other note ³ comes in March, 1749, when "*Wild Pigeons (Columba migratoria)*, flew in the woods, in numbers beyond conception and I was assured that they were more plentiful than they had been for several years past. They came this week, and continued here for about a fortnight, after which they all disappeared, or advanced further into the country, from whence they came. I shall speak of them more particularly in another place." This "another place" must be in some other writings of Kalm than his Travels for I searched these with this expressly in view.

Some ten years later, the Rev. Andrew Bernaby, while travelling from Rhode Island to Boston in the month of September, says:⁴ "During the course of my ride from Newport I observed prodigious flights of wild pigeons: they directed their course southward, and the hemisphere was never intirely free from them. They are birds of passage, of beautiful plumage, and are excellent eating. The accounts given of their numbers are almost incredible; yet they are so well attested, and opportunities of proving the truth of them are so frequent, as not to admit of their being

¹ Bartram, John. Observations on the Inhabitants, etc., in Travels from Pennsylvania to Lake Ontario. London, 1751, p. 36.

² Kalm, Peter. Travels into North America. Translated into English by J. R. Forster. Warrington, 1770. Vol. I, p. 210.

³ *Ibid.*, Vol. II, p. 82.

⁴ Bernaby, Rev. Andrew. Travels through the Middle Settlements in North America in the years 1759 and 1760. London, 1798. 3rd edition, pp. 101, 102.

called in question. Towards evening they generally settle upon trees, and sit one upon another in such crowds, as sometimes to break down the largest branches. The inhabitants at such times, go out with long poles, and knock numbers of them on the head upon the roost; for they are either so fatigued by their flight, or terrified by the obscurity of the night, that they will not move, or take wing, without some great and uncommon noise to alarm them. I met with scarcely any other food at the ordinaries where I put up: and during their flight, the common people subsist almost wholly upon them."

About two years later (May, 1762), Alexander Henry on a trip from Michilimackinac to Sault de Sainte-Marie found¹ "Pigeons were in great plenty."

In the period from 1763 to 1795 occur three short notes. In 1766, William Stork gives us "An Account of East Florida, etc. London, 1766," but abstains from giving any data or stories about the pigeon because (p. 51), "The wild pigeons, for three months in the Year, are in such Plenty here, that an account of them would seem incredible." In 1778, J. Carver, London, wrote his "Travels through the Interior Parts of North America in the years 1766, 1767, and 1768," and 1802, Anthony Haswell, Bennington, Vt., published the "Memoirs and Adventures of Capt. Matthew Phelps, 1773-1780." Both (the first on p. 466, the second, Appendix, p. 55) merely mention the pigeons as among the birds recorded on their respective trips.

At the very last of the eighteenth century Isaac Weld, Junior, spent the years 1795, 1796 and 1797 in travels in North America. While on a trip from Montreal to Kingston in the month of September, he remarks² that "As we passed along, we had excellent diversion in shooting pigeons, several large flights of which we met with in the woods. The wild pigeons of Canada are not unlike the common English wood pigeons, except that they are of a much smaller size; their flesh is very well flavored. During particular

¹ Henry, Alexander. *Travels and Adventures in Canada and the Indian Territories Between the Years 1760 and 1776*. New ed., by James Bain. Boston, 1901, p. 63.

² Weld, Isaac, Junior. *Travels through the States of North America, etc. During the years 1795, 1796, 1797*. London, 1799. 2d edition. Vol. II, pp. 42, 43, 44.

years, these birds come down from the northern regions in flights that it is marvellous to tell of. A gentleman of the town of Niagara assured me, that once as he was embarking there on board ship for Toronto, a flight of them was observed coming from that quarter; that as he sailed over Lake Ontario to Toronto forty miles distant from Niagara, pigeons were seen flying over head the whole way in a contrary direction to that in which the ship proceeded; and that on arriving at the place of his destination, the birds were still observed coming down from the north in as large bodies as had been noticed at any one time during the whole voyage; supposing, therefore, that the pigeons moved no faster than the vessel, the flight, according to this gentleman's account, must at least have extended eighty miles. Many persons may think this story surpassing belief; for my own part, however, I do not hesitate to give credit to it, knowing as I do, the respectability of the gentleman who related it, and the accuracy of his observation. When these birds appear in such great numbers, they often light on the borders of rivers and lakes, and in the neighborhood of farm houses, at which time they are so unwary, that a man with a short stick might easily knock them down by hundreds. It is not oftener than once in seven or eight years, perhaps, that such large flocks of these birds are seen in the country. The years in which they appear are denominated 'pigeon years'."

The first note in the nineteenth century comes the first year, when Alexander Henry, in his journal, writes, Apr. 11, 1800, that, "I embarked in my canoe for Portage la Prairie. Weather excessively hot. Wild pigeons passing N. in great abundance." Again, on the 23rd of April, 1802, when on the east side of the Red River he says¹ "River clear of ice. Pigeons passing N."

"The Expeditions of Zebulon Montgomery Pike," by the same editor,² shows that Pike on a trip from Leech River to St. Louis, April 28, 1806, "Stopped at some islands about ten miles above Salt River, where there were pigeon-roosts, and in about 15 minutes my men had knocked on the head and brought on board 298.

¹ Henry, Alexander, *The Manuscript Journals of*. By Elliott Coues. Three vols., New York, 1897. Vol. I, pp. 4 and 195.

² Pike, Zebulon Montgomery, *The Expeditions of, During the Years 1805-6-7*. New Edition. By Elliott Coues. 3 vols. New York, 1895. Vol. I, p. 212.

I had frequently heard of the fecundity of this bird and never gave credit to what I then thought inclined to the marvellous; but really the most fervid imagination cannot conceive their numbers. Their noise in the woods was like the continued roaring of the wind, and the ground may be said to have been absolutely covered with their excrement. The young ones which we killed were nearly as large as the old; they could fly about ten steps, and were one mass of fat; their craws were filled with acorns and the wild pea. They were still reposing on their nests, which were merely small bunches of sticks joined, with which all the small trees were covered. Met four canoes of the Sacs, with wicker baskets filled with young pigeons. They made motions to exchange them for liquor, to which I returned the back of my hand."

Later, in the same year, we have another note of interest when Thomas Ashe, while at Erie, Pa., in December, 1806, finds the same fondness for salt springs which the Jesuits remarked in 1656. He writes¹ as follows: "The salt lake and springs are also frequented by all the other kinds of beasts, and even by birds; and from the most minute enquiries, I am justified in asserting that their visitations were periodical; except doves, which appear to delight in the neighborhood of impregnated springs, and to make them their constant abode. In such situations they are seen in immense numbers, as tame as domestic pigeons, but rendered more interesting by their solitary notes and plaintive melody."

The succeeding year Pursh makes a botanical observation which is interesting in this connection. When at Martin Creek, Pa., he says:² "This morning I took an excursion accompanied by — who wanted to show me the Leek or Pigeon pea, as he calls it. . . . The Pigeon berries or Pigeon peas we could not find, untill we returned to the house, where a place was where they commonly grow: in hewing up some ground they showed me the roots by which I found them, to be probably nothing else, than the tuberculis of a species of *Glycine*, resembling marrowfat peas very much: the pigeons scratch them up at certain times of the year and feed upon them very greedily."

¹ Ashe, Thomas, Esq. *Travels in America*. Performed in 1806. London, 1808, pp. 49, 50.

² Pursh, Frederick, *Journal of The Gardener's Monthly*, Vol. XI, pp. 14, 15.

At the same time, James Mease discusses¹ the pigeon at some length. "The *columba migratoria*, or common wild pigeon of the United States, winters in the woods of the southern states and Florida, and pass over to the Bahama Islands. After their return in the Autumn to their Winter quarters, they sometimes, in mild Winters, remain in the middle and northern states. During the present season (1806-7), which, upon the whole, has not been severe, they were occasionally seen in our markets. The rev. Mr. Hall gives us the following curious account of the pigeon roosts in the Mississippi territory.

"Another curiosity, which occurred to my view, was the pigeon roost on a branch of Big Black, about sixty miles below the Chickasaw nation. An account of the phenomenon there exhibited, carries with it such an air of the marvellous, that, had I been the only spectator, it would have been passed over in silence. The pigeons had taken their station in and about a place known by the name of the Hurricane Swamp. The greater part of the large timber had been blown down, and they had perched on the branches of the small timber that remained; and which, being broken by them, now hung down like the inverted bush of a broom. Under each tree and sappling, lay an astonishing quantity of dung, of which, from the specimens we saw, there must have been not only hundreds, but thousands, of waggon loads. Round each resting place was an hillock raised a considerable height above the surface, although the substance had been there eighteen months when we made our observations on the place. At that time the heaps were, no doubt, greatly sunk. What bounds they occupied we could not ascertain as the swamp was so full of brambles and fallen timber that we could not leave the road. It is near a mile in diameter; and as far as I can recollect, their traces were the chief part of the way, and about an hundred paces on the north side of the swamp.'

"To give an idea of the number and weight of these pigeons, Mr. H. then relates, that a hickory tree, of more than a foot in diameter, was alighted on by so many of these birds, that its top was bent down to the ground, and its roots started a little on the

¹ Mease, James. A Geological Account of the United States, etc. Philadelphia, 1807, pp. 3417-3449.

opposite side, so as to raise a bank. Trees of a brittle structure were often broken off by them.

"We leave our readers to ponder these things without comment of ours.

"The Rev. Mr. Harris, of Massachusetts, in his 'Tour to the State of Ohio,' gives an account equally curious, of the pigeon roosts of that state."

The "Mr. Harris" of whom Mease speaks is Thaddeus Mason Harris who "Made in the Spring of the Year 1803," "A Tour into the Territory Northwest of the Alleghany Mountains." His account¹ of the pigeon roosts follows: "The vast flights of pigeons in this country seem incredible. But there is a large forest in Waterford, containing several hundred acres; which has been killed in consequence of their lighting upon it during the autumn of 1801. Such numbers lodged upon the trees that they broke off large limbs; and the ground below is covered, and in some places a foot thick, with their dung, which has not only killed all the undergrowth but all the trees are dead as if they had been girdled.

"This account which I received from credible persons at Waterford when I was there, May 13, 1803 is confirmed by a letter written me since my return, by my much-esteemed friend, the Rev. Mr. Story, dated Marietta, June 3, 1803. 'I have visit two pigeon roosts, and have heard of a third. Those I have seen are astonishing. One is supposed to cover one thousand acres: the other is still larger. The destruction of timber and brush on such tracts of land by these small animals is almost incredible. How many millions of them must have assembled to effect it! especially as it was done in the course of a few weeks! A more particular statement will be given this subject in a communication I intend making, agreeably to your request, to the American Academy of Arts and Sciences.'"

In 1810 (April 18), John Bradbury, while proceeding to the country around the Naduet River² "soon discovered that pigeons were in the woods. I returned and exchanged my rifle for a fowling

¹ Mason, Thaddeus Mason. *The Journal of A Tour into the Territory Northwest of the Alleghany Mountains; Made in the Spring of the Year 1803, etc.* Boston, 1805, pp. 179, 180.

² Bradbury, John. *Travels in the Interior of America in the Years 1809, 1810, 1811, etc.* Liverpool, 1817, pp. 44, 45.

piece, and in a few hours shot 271, when I desisted. I had an opportunity this day of observing the manner in which they feed; it affords a most singular spectacle, and is also an example of the rigid discipline maintained by gregarious animals. This species of pigeon associates in prodigious flocks: one of these flocks, when on the ground, will cover an area of several acres in extent, and are so close to each other that the ground can scarcely be seen. This phalanx moves through the woods with considerable celerity, picking up as it passes along, every thing that will serve for food. It is évident that the foremost ranks must be the most successful, and nothing will remain for the hindermost. That all may have an equal chance, the instant that any rank becomes the last, they rise, and flying over the whole flock, alight exactly ahead of the foremost. They succeed each other with so much rapidity, that there is a continued stream of them in the air; and a side view of them exhibits the appearance of the segment of a large circle, moving through the woods. I observed that they cease to look for food a considerable time before they become the last rank, but strictly adhere to their regulations, and never rise until there are none behind them."

In 1819, Fearon, while in the Illinois country, found,¹ "hawks, buzzards, and pigeons in tolerable quantities."

About the same time, the famous Schoolcraft,² "in walking along some parts of the shore, observed a great number of the skeletons and half-consumed bodies of the pigeon, which, in crossing the lake, is often overtaken by severe tempests, and compelled to alight upon the water, and thus drowned, in entire flocks, which are soon thrown up along the shores. This causes the shores of Lake Michigan to be visited by vast numbers of buzzards, eagles and other birds of prey. The Indians also make use of these pigeons, as food, when they are first driven ashore, preserving such in smoke, as they have not immediate occasion for."

Two years later Howison writes³ of the pigeon as follows: "Long

¹ Fearon, Henry Bradshaw. *Sketches of America: etc.* London, 1819. 3rd edition, p. 257.

² Schoolcraft, Henry R. *Narrative Journal of Travels from Detroit Northwest . . . in the year 1820.* Albany, 1821, p. 381 (Aug. 25).

³ Howison, John. *Sketches of Upper Canada.* Edinburgh, 1822. 2nd edition, pp. 174, 175.

Point abounds with game of various kinds. . . . Immense flocks of the passenger or wild pigeon, frequent this and other parts of Upper Canada during the spring and autumn; and myriads of them are killed by firearms, or caught in nets by the inhabitants; for they fly so close, and in such numbers, that twenty or thirty may sometimes be brought down at a single shot."

In 1827 John Lee Williams in "A View of West Florida" (p. 30) gives the "Pigeon — *Columba migratoria*" — as "rare". Again, in 1837, in "The Territory of Florida, etc. New York. 1837" (p. 74) he says, "This kind is not so numerous in general, as the turtle dove, and ground dove."

A more or less extended characterization of the species comes in 1829, when Macauley wrote¹ the following summary: "The pigeon is a migratory bird. In spring they pass to the north, where they spend the summer, and in autumn they return to the south, where they spend the winter. The periods of their arrival and departure are not well defined. Sometimes they come as early as the latter part of March, while at other times, a month later. This seems to depend on the season, their arrival being earlier or later, according to the forwardness or backwardness of the spring. They pass in their periodical migrations, in flocks, which vary greatly in numbers. Some extend a mile or two in length, and consist of a countless multitude, while others are small. The flocks are often seen following each other in quick succession, and at short intervals. These migrations frequently continue for several days. After their arrival, they remain in flocks, for a short time, and then disperse in pairs in order to breed. They build their nests on trees, and usually have two young at a time. They hatch every month. They subsist on mast, wheat, peas, oats, rye, and insects. . . . They are rather smaller than the domestic pigeon, and are good food. The domestic and wild pigeon do not breed together. The accounts which are given of the number of pigeons in the uncultivated country, will appear almost incredible to those who have never seen their nests. Sometimes they occupy several hundred acres with their nests. Twenty, and even thirty nests have been counted on one tree."

¹ Macauley, James. *The Natural, Statistical and Civil History of the State of New York*. New York, 1829. 3 vols. Vol. I, pp. 495, 496.

In 1832, Timothy Flint remarks¹ that, "Pigeons sometimes are seen in great flocks. Their social and gregarious habits incline them to roost together, and their places of resort are called 'pigeon roosts.' In these places they settle on all the trees for a considerable distance around, in such numbers, as to break off the branches."

In the same year, Vigne notes² "the woodcock, snipe, pigeons and wild fowl, in great abundance," and says, "I amused myself with shooting pigeons which are to be found on the island (Mackinac) in great numbers. I was quite surprised at the extraordinary facility and quickness of eye, with which my guide, half Indian and half Canadian, discovered them sitting in the thickest foliage."

Some years later Hugh Murray gives³ a more pertinent note when he marvels at the numbers in the pigeon flocks. "But no bird equals in number the wild pigeons which, at particular seasons, move in vast flocks, or rather swarms, that darken the air like locusts. A body of them once hovered three or four days over the capital, when a continued war was carried on against them by all who could muster fire-arms of any description. The feathered tribes, in unfrequented places, fall easy victims, owing to their having no fear of man."

And, finally, in 1844, Featherstonhaugh in an "Excursion through The Slave States":⁴ "A new and very interesting spectacle presented itself, in the incredible quantities of wild pigeons that were abroad; flocks of them many miles long came across the country, one flight succeeding to another, obscuring the daylight, and in their swift motion creating a wind, and producing a rushing and startling sound, that cataracts of the first class might be proud of. These flights of wild pigeons constitute one of the most remarkable phenomena of the western country. I remember once, when amongst the Indians, seeing the woods loaded from top to

¹ Flint, Timothy. *The History and Geography of the Mississippi Valley*. Second edition. Cincinnati, 1832. Vol. I, p. 73.

² Vigne, Godfrey T. *Six Months in America*. 2 vols. London, 1832. Vol. I, p. 89; vol. II, p. 115.

³ Murray, Hugh. *An Historical and Descriptive Account of British America*. 3 vols. Edinburgh, 1839. Vol. I, p. 350.

⁴ Featherstonhaugh, G. W. *Excursion through The Slave States*. New York, 1844, p. 88 (Arkansas).

bottom with their nests for a great number of miles, the heaviest branches of the trees broken and fallen to the ground, which was strewn with the young birds dead and alive, that the Indians in great numbers were picking up to carry away with their horses; many of their dogs were said to be gone mad with feeding upon their putrified remains. A forest thus loaded and half destroyed with these birds, presents an extraordinary spectacle which cannot be rivalled; but when such myriads of timid birds as the wild pigeon are on the wing, often wheeling and performing evolutions almost as complicated as pyrotechnic movements, and creating whirlwinds as they move, they present an image of the most fearful power. Our horse, Missouri, at such times, has been cowed by them, that he would stand still and tremble in his harness, whilst we ourselves were glad when their flight was directed from us."

THE BREWSTER'S WARBLER IN MASSACHUSETTS.

BY JULIA WINGATE SHERMAN.

EARLY Sunday morning, May 19, 1907, my daughter and I went on a bird-walk near our home in Roslindale, which is one of the many beautiful suburbs of Boston. When a short distance from the house we heard a Golden-winged Warbler give his *zee-zee-zee*, as I then supposed. My daughter not having seen one that season, we stepped out of our path to take a look at the singer. Imagine my surprise — not a Golden-winged but a fine male Brewster's Warbler was perched before us. He sang over and over again his high, lazily given song which so closely resembles that of the Golden-wing that it could easily be mistaken for it. On careful listening, at close range, it seemed higher and finer in quality. This specimen was in fine typical plumage, but was wholly white underneath. He kept for some time on a low, isolated, gray birch where he showed himself in all lights.

We continued our walk in the direction of Tom William's Pond.

When within a short distance of it, we saw, in a mixed flock of migrating warblers, either the same bird or one in similar plumage.

A few days later a pair of Brewster's Warblers were reported nesting in the Arnold Arboretum. I did not see the birds or the nest, but I was told by Mr. Charles J. Maynard and others who did see them, that the nest contained five eggs, all of which hatched. Dr. Faxon reported the young to have left the nest when seven days old. Mr. Maynard sent me a water-color drawing of the female and young, which he made at the time. This female showed an extensive, nearly black throat patch, also a large yellow patch in the wing.

During the spring of 1908, a pair of Brewster's Warblers again built in the Arboretum near their old site, but on the other side of the road. This nest was found by me after having been given a clew by Mr. John Carver of its supposed location. It was placed a few inches from the ground and rested in the center of the upright shoots of a young cornel bush. Eventually it contained four eggs. Three disappeared, leaving one on which the female sat for several days but finally abandoned it. The last visit I made to the nest, which was some time later, showed the egg still there. I have since been told that the nest is now included in the Harvard University Collection.

Mr. Carver told me that the birds started to build again, a few feet away, but that they did not complete the nest.

This female, of which I made a water-color drawing, showed a dark dusky throat patch, not clearly defined at its base, but blended into the pale gray of the upper breast. It was blackest at the base of the bill and at the center of the throat.

The black line through the eye was broader and extended back farther than did that on the Brewster of the preceding year. She differed also in showing two broad yellow wing-bands.

June 5, 1910, my son's attention was attracted to a male Golden-winged Warbler carrying nesting material not far from our house. He told me about it and took me to the place that afternoon. We soon found the male, a beautiful specimen, easily recognized and distinguished from other male Golden-wings by his jet black throat patch which extended up and back on either side of his neck. This took away its usual triangular shape and gave it rather the appearance of a bib.

Presently his mate flew to him. I immediately recognized in her a female Brewster's. They mated and sported about for some time. Although I had read that it was believed that these species do interbreed, I never expected to have the actual experience come within my observation.

This female Brewster's was in much the same plumage as the last described. She differed, however, in having the dusky throat patch lighter in color. It bore the same character in being darker towards its center and directly under the bill. The one of 1908 had a nearly black throat patch, mottled slightly in appearance. The black line through the eye was narrower and placed on a pale gray cheek. The white line above the eye was uniform in width and looked as if put on with a brush, it was so beautifully defined. The white line below the eye was shorter. The whole tone of the back was more olivaceous. Two bright yellow wing-bars divided by an olive or dark band showed on the wing.

The entire underparts were washed with yellow, which showed quite bright on the middle of the breast in good light. The crown was bright dandelion yellow running into bronzy yellow toward the back of the head.

Seeing such a mismatched pair, I knew the rest of their history would be interesting and determined to locate their nest if possible. This I did not succeed in doing until on the 13th, by inadvertently walking almost onto it; the mother bird flew off, thus pointing an index finger to the spot.

It was placed in a blossoming backberry bush about six inches from the ground. It rested in the center of the bush, being supported by the upright briery canes. The material used in its construction was oak and chestnut leaves, with strips of red cedar bark, and grasses for a lining and to hold the nest together. The single strand of horse hair was inside. All the material was found close at hand. The leaves were whole.

It was securely yet loosely made, and so deep ($2\frac{1}{2}$ inches on the inside) that the little nestlings looked well protected. It was so well concealed that I always had to look sharply to see it, even knowing its exact location. Living grasses were pulled up about it in such a way as to completely hide it. It contained, when found, four eggs similar to those, as I remember them, of the

Arboretum Brewster's of 1908. They were white, speckled with irregular patches of brown; more heavily on the larger end. Each egg lay with its smaller end towards the center of the nest.

June 21. I visited the nest from which the mother bird flew. Knowing incubation must be nearly completed I went away as quickly as possible.

June 22. After supper I went to the nest and found the four eggs hatched, and such helpless mites. Too helpless to move.

June 24. The female flew from the nest on my going to it. The young were nearly twice the size as last seen. The male Golden-wing was busy carrying green caterpillars to them.

June 25. The female was still brooding. The young had wing-feathers one quarter of an inch long, and the general development was very marked.

June 26. I found both parents away. This afforded me an excellent opportunity to look at the nestlings closely. Both parents soon returned bringing two green caterpillars each. These the babies soon devoured. Their eyes had opened and their daily increase in size was very noticeable.

June 29. The young were covered with an olive down above, and so crowded in the nest that only their heads and backs were visible. I put my hand over the nest. Not a sound came from it and none attempted to leave it. The mother bird was away but returned without food.

Early Thursday morning, June 30, the nest was empty. I could not imagine those helpless looking nestlings of the night before, winging their way out into the world, and feared some accident had befallen them. Although there were no signs of either of the parents about I determined to wait a while. Soon I was rewarded. The mother bird came, bringing two green caterpillars which, on seeing me, she swallowed; and leaving the tree, on which she first perched, she flew unconcernedly about for some time.

Finally she went into a tree with intervening trees between us. Closely watching her vicinity, I saw her drop into the tall grass for a second and fly up onto the tree again. Twice she did this, but so quickly that I could not see whether she had food or not.

Going to the places where she dropped I found two fledglings. From further watching, I concluded the other two were in a clump of blackberry bushes growing in a rock heap.

One of the fledglings, on pursuit, flew into a cranny of a nearby stone wall. Here I watched him for some time. He was olivaceous brown throughout, being lighter on his abdomen. The wings were dull brown with two wide clear dandelion yellow wing-bars. The wings were very large in comparison to the bird. Some down still clung to the top of his head.

It seemed a miracle that a fledgling so tiny, just seven and one half days from the egg, could fly with such wonderful strength, twenty feet in one flight, as I saw him do, and catch his perch like his experienced parents.

Two days later the little clearing where this remarkable pair of warblers made their home, settled into its usual quietness. No more the alarm note of the anxious mother greeted me, no more the love song of the Golden-wing floated to his mate. Nothing but the vacant nest gave evidence of this history making pair.

THE LITTLE GULL, *LARUS MINUTUS* PALL., IN MAINE,
WITH REMARKS ON ITS DISTRIBUTION, AND
ITS OCCURRENCE IN AMERICA.

BY ARTHUR H. NORTON.

ON July 20, 1910, an adult male *Larus minutus* was taken at Pine Point, Scarborough, Maine, and the following day it came into my hands.

The bird is in nuptial plumage, with the post nuptial moult begun. The outer primaries are much worn, while some of the inner ones, fifth, sixth, and seventh, are new, not yet having attained their full growth. It wears the black hood, though this is sprinkled on the forehead, crown, and chin with a few white feathers of the post nuptial dress. While apparently in good health, it was almost entirely free from deposits of fat. Its weight, with stomach empty, was $3\frac{1}{2}$ ounces. The right testis was 3 mm.

long. Total length, 242 mm. (11.50 in.); total extent, 692 mm. (27.25 in.); wing, 212 mm. (8.38 in.); culmen, 24 mm. (.94 in.); tarsus, 25 mm. (.97 in.); middle toe, 26 mm. (1.00 in.). Bill purplish black, feet dusky flesh color.

The bird had been seen in the same vicinity several times during the previous six weeks, so I was informed, usually alone when feeding, though resting on one or more occasions with the Bonaparte's Gulls.

This is apparently the first occurrence of the Little Gull in New England, the third in the United States, and about the sixth or seventh occurrence in America. It is, therefore, entitled to rank as an occasional straggler to this continent, and is deserving of renewed interest. Consequently it seems timely to mention its field and distinctive marks, and to review its distribution and its American records.

The adults are distinguished at once by the broad white posterior border of the wing, without black, the pale pearl gray mantle, and the slaty lower surface of the wings. The young, by the inner vanes of the outer primaries being chiefly white, the inner primaries with both webs gray, their tips white, the white increasing in length as it proceeds in, and without black subterminal areas. Moreover, it is the smallest known gull.

In summer it occurs in Sweden, Russia, throughout northern Siberia, more rarely in southern Siberia, and has been recorded from the southern part of the Okhotsk Sea.¹ It is found throughout the year on the Mediterranean and Adriatic seas.² Winters in northern Africa and northern India,³ and in the North Sea in the vicinity of Heligoland.⁴ At the latter place the fall migration is said to be a striking phenomenon.⁵ In the British Islands it occurs only as a frequent visitant. It is a bird partial to lacustrine and estuarine districts.

In America, one was obtained at the Bermudas Jan. 22, 1849, by Major Wedderburn, and another was killed the following

¹ Taczanowski, Mem. St. Petersbourg Acad. Sci., VIII series, XXXIX, ii, pp. 1043, 1044.

² Temminck, Man. d'Orn., pt. IV, p. 490.

³ Taczanowski, *l. c.*

⁴ Gätke, Heligoland as an Orn. Observatory, p. 556.

⁵ Gätke, *l. c.*, p. 555.

month.¹ A few were seen, and a specimen procured, near Mazatlan, Mexico, March 27, 1868, by Colonel Grayson.²

An immature specimen was shot at Fire Island, Long Island, N. Y., about Sept. 15, 1887, and is preserved in the American Museum of Natural History, New York City,³ while another specimen was taken at Rockaway Beach, Long Island, N. Y., May 10, 1902. This was a female "in immature plumage" and is preserved in the Museum of the Brooklyn Institute of Arts and Sciences,⁴ Brooklyn, N. Y. We therefore have five unchallenged American records.

There apparently exist important discrepancies between the Sir John Franklin record and the grounds advanced for its elimination; therefore it may properly be reconsidered. This record was rejected largely on account of the following statement from Dr. Elliott Coues: "Professor Baird thinks that there is no good reason to consider this bird an inhabitant of or even a visitor to North America. It has been included in our fauna on the strength of a statement of Sabine, who saw a small Gull, with black head and bill, greatly resembling the *Larus minutus*. This, however, was before *Larus bonapartei* was described and made known by Richardson in F. B. A., and a poorly preserved or immature specimen might easily be referred to *Larus minutus* by one ignorant of the existence of two species."⁵

Swainson and Richardson say: "A specimen obtained on Sir John Franklin's first expedition, was determined by Mr. Sabine to be a young bird of the first year of this species [*L. minutus*], exactly according with M. Temminck's description."⁶

Coues has said: "Saw a small Gull with black head and bill." This is plainly an adult bird, and if only seen belongs in the limbo where Dr. Coues placed it. Richardson, however, has said: "Obtained a young bird of the first year . . . according exactly with M. Temminck's description."

On referring to Temminck for diagnostic features of the young

¹ Hist. N. Am. Bds., Water Bds., II, p. 265.

² *Ibid.*

³ Dutcher, Auk, V, p. 172.

⁴ Braislín, Auk, XX, p. 52.

⁵ Proc. Philadelphia Acad. Nat. Sci., XIV, 1862, p. 311.

⁶ Fauna Bor.-Amer., II, p. 426, fide Dutcher, Auk, V, p. 171.

of the year we find the following statement: "Les quatres premières rémiges noires sur les barbes extérieures et à leur bout, mais blanches sur les barbes intérieures; *les trois suivantes cendrées en dehors, et la point blanches.*"¹ (Italics mine.) That a part of the primaries are increasingly white tipped, and the secondaries largely so in birds of the first year, is also shown to be true by Dr. Taczanowski.² The contrary is the case in *Larus philadelphia* which has all the primaries, and even the secondaries, broadly black tipped, merely surmounted so to speak with small white spots. Thus the posterior border of the wing is entirely black in the latter species. In *Larus franklinii* the outer *five* or *six* primaries, in this plumage, are black on both webs.³

In view of this, unless it can be shown that Swainson and Richardson are in error, in their detailed statement, it seems that the British American record should be reinstated. We have still one hopeless report to notice in closing. I refer to Temminck's statement that "this bird appears also in Greenland."⁴

GENERAL NOTES.

The Red-billed Tropic-bird in Arizona.— In 'The Auk' for October, 1905 (Vol. XXII, p. 408), Mr. George F. Breninger recorded a specimen of the Yellow-billed Tropic-bird taken near Phoenix, Arizona, in April, 1905. This bird, which, among others, was recently presented by Dr. L. C. Sanford to the American Museum of Natural History, proves to be a Red-billed Tropic-bird (*Phaëthon æthereus*). The dull yellowish color of the bill, which doubtless led to the error in identification, is a mark of immaturity, as is also the broad and unelongated pair of central tail-feathers.

Mr. W. W. Cooke informs me that there is no other Arizona record of the Yellow-billed Tropic-bird. Hence the species must be removed from the list of birds of that territory and its place taken by the Red-billed

¹ Man. d'Orn., II, p. 788.

² Mem. St. Peter. Ac., VIII, S., XXXIX, ii, pp. 1043, 1044.

³ Coues, Bds. Northwest, p. 655.

⁴ Man. d'Orn., IV, 1840, p. 490.

species of which there seems to be no previous Arizona record. The date given on the label of this specimen is April 10, 1905.—W. DE W. MILLER, *American Museum of Natural History, New York City.*

Status of the Black Duck (*Anas rubripes*) in Colorado.—The appellation of that form of Black Duck found in Colorado is certainly having its quota of vicissitudes, which may in part be accounted for by the fact that it is a rare species in our State, only four absolute records having been made to date. It may be well to note here another specimen—a mounted bird (a male) in the Colorado Museum of Natural History, Denver. It was taken by W. N. W. Blayhey at Loveland, Colorado, in 1907. This specimen and one in the writer's collection are the only two known birds available for identification.

In 'The Birds of Colorado,' by W. W. Cooke, March, 1897, our form of this duck is given as, "*Anas obscura*. Black Duck....An eastern species finding in Colorado its most western extension." In the first supplement to this volume, March, 1898, the same name is retained. In the second supplement, May, 1900, Mr. Cooke changes the name of our form of this duck and refers it to the more southwestern type in the following words: "In place of 133, *Anas obscura*. Black Duck. Put 134a. *Anas fulvigula maculosa*. Mottled Duck. Although no specimens of this duck taken in Colorado have been examined by the present writer, yet there can be no doubt that the three specimens reported really belong to this subspecies."

We wonder why Mr. Cooke felt justified in making such an unqualified statement in view of the fact that this change to *Anas fulvigula maculosa* was made by him wholly on geographical grounds. It appears also that the original reference of our form to *Anas obscura* was also made entirely on geographical grounds.

In the light of subsequent events we are again reminded of how unsafe it is to refer any bird to any particular form purely on geographical grounds, without a single specimen ever having been identified as belonging to such form, unless it is stated clearly that there is a question as to the form to which it should be referred. When it has been once indubitably established that a certain form, be it, for example, a certain subspecies, is found in any given locality we of course have the right to consider all the birds of this type reported from this locality as being of this particular subspecies until another subspecies has been discovered.

Since the appearance of the second supplement to 'The Birds of Colorado' it has been assumed by Colorado ornithologists that our form of Black Duck is *Anas fulvigula maculosa* (Mottled Duck), as is evidenced by recent writings. The present writer never having seen more than the one specimen referred to above as being in his own collection, and not wishing to trust in a final test the obscurities of book descriptions on a female bird of semi-pronounced characters, noted a possible change of name on the specimen's tag from *Anas obscura* to *Anas fulvigula maculosa*

to be determined at such time when the specimen could be sent to Washington for comparison with large series. A reference to this specimen appeared under the latter name in an 'Annotated List of the Water Birds of Weld, Morgan and Adams Counties, Colorado,' etc., by the writer in 'The Auk,' Vol. XXVI, No. 3, July, 1909, p. 280.

This specimen was recently sent to Washington and examined by Mr. Harry C. Oberholser, who pronounced it *Anas rubripes* (formerly *Anas obscura*), Black Duck. Believing that Dr. Dwight had, in 'The Auk,' October, 1909, demonstrated that there is no subspecies of the Black Duck, Mr. Oberholser made no attempt to refer it to any subspecies.

Upon its return I took the specimen, together with Coues's and Ridgway's manuals, to the Colorado Museum of Natural History and made a very careful comparison of my bird with the specimen there, which bears the name, "*Anas fulvigula maculosa*." The comparison convinced me that that specimen is also *Anas rubripes*. To confirm this opinion, I sent to Mr. Oberholser a careful description of the bird together with a drawing of its head showing patches of buff and black specking and streaking. In an answer just received from him he says, "I have not much doubt of its being *Anas rubripes*."

It has never to my knowledge been assumed that more than one form of the Black Duck exists in Colorado. That *Anas rubripes* is found here is now positive, and until some other form is proved to be co-existent, the Black Ducks of our State should be referred to this form.—A. H. FELGER, Denver, Col.

The Blue-winged Teal in Cuba in Summer.—I beg to report that on June 12, 1910, while collecting in a brackish lagoon named "Laguna de Manati," which lies on the bay about 4 leagues from the town of Guanatanamo, I saw three Blue-winged Teal (*Querquedula discors*), two males and a female, swimming in the lagoon. Thinking they might be wounded birds and unable to fly I waded in after them and was very much surprised to see all of them take to wing and fly off, finally circling again over the place where I stood and lighting on the other side of the mangroves which surround the lagoon. I have not had time to return to the lagoon since, so do not know how long they remained there.—CHARLES T. RAMSDEN, Guanatanamo, Cuba.

The Turnstone at Grosse Isle, Michigan.—In April last I had some dredging done along the river front bordering my place on Grosse Isle which resulted in a bank being thrown up along the shore for some distance and reaching well out into the river. Here it was washed down by the waves almost to the water's surface, forming, in some places, a rather muddy little flat. On May 29, 1910, I happened to see a flock of waders circle down to the end of the cut, and upon investigation found them to be a flock of thirty Turnstones (*Arenaria interpres morinella*), all in rather high plumage. They would bunch closely together near the water's edge,

and every now and then, without any apparent cause of alarm, would fly out over the water as one bird, make a wide circle, and invariably return to the same spot. This flock remained here until it was too dark to see them further, but was gone the next morning. While Turnstones are not uncommon on the shores of Lake Erie they seldom ascend the river. I am aware of but one prior record for the county.—B. H. SWALES, *Grosse Isle, Mich.*

A Massachusetts Record for the White-tailed Kite.—As this bird is rare east of the Mississippi River, and in fact is scarcely much more than a straggler even in that region, its appearance on the Atlantic coast as far north as New England is very extraordinary. On May 30 last I saw an adult bird at very close range on the island of Martha's Vineyard. It was so close and was watched with glasses for such a long time, both by myself and Mr. C. E. Brown of the Boston Society of Natural History, that there was not the slightest doubt in our minds as to its identity. We were spending several days on the island studying the birds and on one of our daily trips came upon this specimen very unexpectedly at a fresh meadow at the head of one of the ponds. When first seen he was sitting on a post not a hundred yards distant and we took him to be a marsh hawk, but on looking again before even raising our glasses, we saw that he was something very different. His white head and tail and more especially the black lesser wing coverts were very distinctive at that distance and immediately attracted our attention. The ashy blue back was what suggested an adult Marsh Hawk at first glance. From this distance we watched him for some time with our glasses and on a nearer approach he flew to another post, which he shortly abandoned to soar above the meadows at a height of a hundred or more feet. There were many Red-wing Blackbirds nesting in the bushes by the stream and they were so alarmed at his presence that they several times attacked him. We imagined he was looking for mice or perhaps frogs, as he apparently did not bother the birds. When he saw his prey below he would commence fluttering like a Sparrow Hawk, and then, on seeing his chance, he raised his wings above his back, so that they almost touched, whereupon he descended, gaining speed as he went. Instead of checking himself on nearing the ground, he seemed to dive headlong into the grass and bushes, remaining out of sight several seconds before reappearing. We were unable to make out if he had anything in his claws when he arose again. This process was repeated several times and was a remarkably interesting performance. Finally he lit on another post and I crawled towards him keeping close to the fence, so that I actually got within ten yards of him before he flew, getting a wonderful view. He arose from there very much startled at my presence, flew over the hills and disappeared. The following week, on our next trip, which we made in the hopes of again locating him, he was seen once more at long range, but except for these two times we never caught another glimpse of him. I believe this Kite has never before been seen in New England, but of

course it can only be regarded as a very rare straggler, scarcely deserving a place on our New England list.—S. PRESCOTT FAY, *Boston, Mass.*

Notes on the Bald Eagle in Georgia.—It is commonly stated that the Bald Eagle will not lay a second set of eggs after the first have been taken. A fine set of eggs were taken Dec. 5, 1909, by Mr. Frank N. Irving, and are now in his collection. This pair of birds laid again and the young of the second litter were taking their first lessons in flying on the 10th of April. A second nest that was robbed on the 12th of December contained young on the 3d of April.

Another very common statement is that these eagles mate for life. On March 13th I killed a male bird near a nest containing young. This was a fully matured pair of birds which the owner of the property desired to have destroyed, and they were very closely watched. Only three days later, on the 16th, it was reported that the female bird had another mate. This was proved to be true on the next day when an immature male bird was found feeding the young in her company. This nest was successfully photographed from a neighboring tree by Mr. J. F. Jennings of Nuangola, Penna. Neither of the old birds came near enough to get into the picture. All of them, however, are now in a private collection.

Possibly Chatham County is particularly favored by the Bald Eagle. Fully fifteen nests are known and their locations are "confided" to me. All of them have been well proved. But "mine" is a nest that was in process of building on the 6th of March last and did not contain young until the 17th of May. The pair are both in immature plumage, though the female is beginning to show distinct traces of white in the tail. Though this nest is in a position in plain sight of thousands of passers-by to a popular suburban resort it is so neatly concealed by intervening branches as to defy detection. "My" birds hatched in 83 days and in forty-two days more the young had left the nest. Times of incubation have been variously stated to me as from 34 to 42 days. Fresh eggs have been taken here from the middle of November till late in March.—W. J. HOXIE, *Savannah, Ga.*

Hawk Owl (*Surnia ulula caparoch*) in Michigan.—Another record of this bird in this section of Michigan is a female taken around November 6, 1906, in the vicinity of Port Huron, St. Clair County, by a Mr. Walters. This bird was sent in to Mr. Uppinger, Detroit, for mounting. Mr. Walters also sent in the specimen recorded by Taverner, from the same locality, Nov. 19, 1905. (See Auk, 1906, p. 108.)—B. H. SWALES, *Grosse Isle, Mich.*

The Snowy Owl (*Nyctea nyctea*) Taken in South Carolina.—I am indebted to Mr. James Henry Rice, Jr., secretary of the Audubon Society of South Carolina, for information concerning the capture of this boreal bird. The specimen was taken by two small boys $3\frac{1}{2}$ miles northwest of Winnsbow, Fairfield County, on November 28, 1908. It came into the

possession of Mr. R. Henry Phillips, game warden of Fairfield County, who skinned the bird, and from whom I received it in exchange. Mr. Phillips says it was taken after a storm of wind and sleet, and is a female.

The first specific record for the State was mentioned by Bartram in his 'Travels' (second edition, 1794, 285). Audubon¹ says: "Several individuals have been procured in South Carolina, one on James Island [near Charleston], another, now in the Charleston Museum, on Clarkson's plantation [near Columbia], and a fine one was shot at Columbia, the seat of government, from the chimney of one of the largest houses in that town, and was beautifully preserved by Professor [Lewis R.] Gibbes of the Columbia College."

Mr. Leverett M. Loomis,² in reference to a specimen seen by him at Chester, says: "During the early part of December, 1886, I saw an individual several times under circumstances that dispelled all doubt from my mind as to its identity."

About the middle of February, 1899, I picked up a feather in a primeval forest near my house which must have belonged to a Snowy Owl, as the color, texture, size, elasticity, etc., plainly showed that it was an owl's feather. It was marked like some feathers of the White Gyrfalcon (*Falco islandus*), but did not possess the rigidity of that bird's feathers.

As far as my information extends this makes the fourth specimen of the Snowy Owl taken in South Carolina since Audubon wrote.—ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

Nesting Colonies of the Green-crested Flycatcher and Parula Warbler, Past and Present.—On May 31, 1893, during a visit to my brother while at School at Suffolk, Va., we managed to break away from commencement exercises long enough to pay a visit to Lake Kilby, situated about a mile from the center of town. Then, as now, the lake furnished the water supply for the cities of Suffolk and Portsmouth, but at that time a large number of pleasure boats were kept on it, and no permit was necessary to fish or enjoy an outing on its placid but juniper stained waters. My brother had visited the lake a few days previous to my arrival and found that both the Parula Warbler (*Compsothlypis americana*) and the Green-crested Flycatcher (*Empidonax virescens*) had established themselves in large colonies on the lake, with nests completed. We arrived at the pump house about 8 A. M. and after securing a small double-ended bateau with paddles, pushed off. The lake, which is quite deep, is surrounded by high ground, while along the edges and growing in the water near the shore are juniper trees, which at that time were festooned with the beautiful long hanging Spanish moss. A few trees, mostly with dead tops, and stumps, were scattered here and there over the surface, the latter well filled with nests of the House Wren, Bluebird, Yellow-shafted Flicker, Great-crested Flycatcher, Tufted Titmouse, and Prothonotary Warbler.

¹ Birds of America, I, 1840, 115.

² Auk, VIII, 1891, 55, 56.

These species had no charm for us that day for as our boat skirted the fringe of trees near shore, nearly every lower branch contained one or more nests of the Acadian Flycatcher and Parula Warbler, sometimes two or more nests of each species in one tree. The general run though was a nest of the warbler in the long Spanish moss near the extremity of the limb, while further in toward the trunk and on a small crotch, was that of the flycatcher. We never had to climb the trees for any, there were plenty within reach from the boat, nor did we examine more than a small portion of the lower end of the lake before we had a sufficiently large series of both species.

I should have mentioned before that Suffolk and Lake Kilby lie on the outskirts of the famous Dismal Swamp, the juniper trees in both places discoloring the water to a reddish brown, and all of the trees festooned formerly with the beautiful Spanish moss. The juniper water causes a total lack of water-fowl or shore birds.

In 1895, about May 28, my father and brother paddled from Suffolk down the little canal to Lake Drummond, in the heart of the Dismal Swamp, but found the above species sparingly distributed, and with either well incubated sets of eggs or young. I gave this section little thought until the season of 1909, when I suggested to my friend and local bird crank, J. E. Gould of Norfolk, that we take in once more Lake Kilby, promising him sights to open his eyes—for such they were in days of yore. After some little delay and red tape in securing a permit, thanks for which are due to Mr. Gould, we started for Suffolk on the first train the last day of May. Delay in schedule time of arrival of train landed us in Suffolk about nine A. M., while another fifteen or twenty minutes were consumed while walking to the lake. What a change a lapse of sixteen years had wrought. A new and handsome pump house with filtering tank buildings surrounded by well kept lawns greeted us at the old dam, but greater changes were yet in store for me. After changing our clothes for egg collector's regimentals and securing the still used old-time double-ended bateau, we made haste to make up for lost time. We commenced at the lower end with a systematic search of the trees in the lake and those bordering it. We had n't gone many turns of its broken shore line before it became apparent to me that it was "Happy days gone by," and while the same trees were still there, also many of the old stumps, the Spanish moss as well as the birds were lacking, almost a total absence of 'virescens' and 'americana.' Though we worked the whole shore line thoroughly, and special attention was given the heads of the ravines where the moss used to be thickest, only about a dozen trees had any moss on them. The total count of nests were—'virescens,' two, one just finished, the other a set of two eggs; 'americana,' six, four nests just completed, a set of two, and one set of three eggs. We ate our lunch in disgust, for the single pair of Prothonotary Warblers seen had also baffled our prying eyes. This year I again resolved to visit the lake, but at a later date, hoping against hope things would be changed. I spent the

night of June 4 in Suffolk and the next morning reached the lake about six A. M. It had rained heavily during the night and the clouds were still black and threatening, and hardly had I pushed off from the pump house landing before rain came down in torrents. Making the best of a bad job, I again thoroughly worked the whole lake and its tributaries with the following result: Two full sets of three eggs of 'virescens,' and two sets, three each, of 'americana.' The moss is becoming more scarce each year on the trees, the cause for which I cannot account, and whether or not it is lack of building sites and material, or lack of insect food found in the moss that keeps the birds away I cannot say. In 1893 there must have been at least four or five hundred pairs of each; where have they gone? Have they followed the moss? I hear that the junipers in the Chickahominy Swamp are still festooned with this moss. I hope next season to investigate that locality for evidence of these birds. The nests of 'americana' are located in the center of a clump of hanging moss, composed of moss and lined with a little yellow or orange plant down. They are extremely hard to locate unless the bunch of moss is placed between you and the sky line, when a dark clump or spot reveals its presence.

The nest of 'virescens', composed of moss only, is always located on the crotch of a limb, in a slight depression. The shrill whistle of the birds soon disclose their whereabouts, and by watching them a few moments one can locate the nest, as they invariably fly over it or to it.—H. H. BAILEY, *Newport News, Va.*

An Albinistic White-throated Sparrow.—The spring migration of this year brought to Mt. Vernon, Iowa, an albinistic specimen of striking appearance and possibly rather more than usual interest. On Monday, April 25, a bird-lover of the town reported to me over the telephone "a large sparrow with a pure white head," the same having appeared on her grounds the day before. I found it to be a White-throated Sparrow (*Zonotrichia albicollis*) among many of its own species. The whole head and neck were white, with the exception of the yellow lores and a small black patch on the crown not larger than a grain of rice. The boundary line between the snowy white of the head and neck and the quite normal markings of all the other areas was regular and abrupt. The iris appeared normal. Although so conspicuously distinguished from its fellows the albino showed no peculiarities in conduct. With others of its flock it came under the windows for scattered seeds, where it fed without suspicion and during five days was frequently observed at a distance of four feet. The bird could not be collected without offense and presumably left with the bulk of the first wave of White-throated Sparrows during the night following April 28.—CHARLES R. KEYES, *Mount Vernon, Iowa.*

Supposed Nesting of the Pine-woods and Bachman's Sparrows in Chatham County, Georgia.—On the third of June, 1910, while collecting in the northern part of the county I heard a note that was unfamiliar

to me, but on securing the bird found it to be a Bachman's Sparrow. It was a female with two eggs at least of the litter still to be laid. Mentioning the fact to Mr. Frank N. Irving, he said that he had noticed the same difference in the song of some birds that he was watching. From the difference in song I at once supposed that we had found Bachman's Sparrow breeding here and told Mr. Irving that if he found the nest it would be an arched one. The following Sunday he secured not only the nest but both the parent birds. This nest and another open nest, which must undoubtedly be the Pine-woods', have been carefully photographed and the close similarity of the surroundings shown. The two locations are not much over a hundred yards apart.

The pair of birds taken by Mr. Irving were submitted for examination to the Biological Survey in Washington and found not to differ in plumage from type specimens of the Pine-woods Sparrow, which did not astonish us here, as we find much difficulty in distinguishing the two among the specimens that we take here. Of the dozen or so *Pucæas* that pass through my hands yearly it seems as if the winter specimens oftenest approach the Bachman type as described by Ridgway. Coues seems to be mixed on the subject but I have not his 'Key' at hand to refer to.

Now the problem before us is whether there are two *Pucæas* or one nesting here. If one, why should it ever build an arched nest, and why, when it does build an arched nest, does it sing a different song? Unfortunately I was so busily occupied during most of the nesting season this year that I did not get a fair chance to settle the question beyond doubt, but desire to make these observations public now so that we may not lose credit for the discovery, as I did for my Bachman's and Swainson's Warblers.

In this connection let me also mention that I found the Savannah Sparrow nesting at Tybee this year. It seems to have been found by Alexander Wilson in approximately the same locality about a hundred years ago.—W. J. HOXIE, *Savannah, Ga.*

Nesting of *Passerherbulus henslowi henslowi* on Grosse Isle, Michigan.—Since May, 1907, I have observed on nearly every trip afield a small colony of four or five pairs of Henslow's Sparrows in a field in the central part of the island. This field has been allowed to grow up into a dense tangle of goldenrod, asters, pigweed, and other weed growth. Here during May and June I can always hear the very characteristic *se-slich'* calls of the males that are generally perched on some tall swaying weed-stalk. I never gave the time to make a careful search for the nests, but on May 31, 1909, I accidentally found one. I was passing through the lowest part of the field where it borders a woodland, and is generally rather wet. Here I flushed a Henslow's Sparrow from almost beneath my feet, and a short search revealed the nest. This was well screened by a bunch of grasses, sunk in a slight depression, and was composed of fine grasses, and contained four eggs. I withdrew to a short distance to await the

return of the female, and I must admit that it was with some difficulty that I was able to discover the nest again, so well was it hidden. The female again hurriedly flushed which helped me out from further search. In late summer and early fall it is a tedious matter to make these little mouse-like sparrows flush, and once put up they pitch down into the grass apparently only a short distance away, and evidently worm their way through the tangled grass to a distant part of the field. In 1905 I saw the first bird April 30, and the last Oct. 1; in 1904 the last was secured Oct. 2. In 1906 I noted the first May 6; in 1908, May 6; and in 1909, May 12.—B. H. SWALES, *Grosse Isle, Mich.*

The Impaling Instinct in Shrikes.—The shrike habit of impaling its prey on thorns is mentioned in nearly every book on birds, but the greatest diversity exists as to the reason given for the habit, some maintaining that it is done out of an innate love of torture, others, to lure other victims, still others, that it serves only as a fork to hold the prey, while most seem to agree with Audubon that it is "quite a mystery."

As I can find, in the literature at my disposal, only three references to its returning to feed on its victim (Condor, IV, also quoted in Bailey's 'Handbook of the Birds of the Western United States'; Bull. 9, U. S. Dept. of Agric., Div. of Biol. Sur.; and Knight's statement in 'Birds of Maine' that "sometimes they do" return), it seemed desirable to put the following observation on record.

The shrike (*Lanius ludovicianus excubitorides*) in the vicinity of Albuquerque, New Mexico, feeds, during the late fall and winter, quite frequently on the lizards (*Uta stansburiana* and *Holbrookia maculata*) which usually are about in some numbers during the warmer hours of an average winter day. These the shrike impales on thorns, etc., according to its usual custom with small birds and grasshoppers. But the month of December, 1909, was unusually cold and the lizards did not appear.

While riding over the mesa early in January I both saw and heard a shrike perched on a desert willow (*Chilopsis*) feeding on some dry hard substance. Examination showed that the food was the extremely dry bodies of some lizards that had all the appearance of having been placed there several weeks before. The ground about was strewn with fragments and there were still many on the thorn-like branches of the *Chilopsis*. It was the noise the bird made in his attempt to break up this material that first attracted my attention. It is well to observe that in our dry atmosphere such an impaled animal does not decay as it would in a more humid climate but cures perfectly. In fact the native people regularly dry pieces of meat for future use by fastening it to the clothes-line where it is exposed to the almost tropical sun and desert wind.—J. R. WATSON, *University of New Mexico.*

Petrochelidon fulva pallida in Texas.—Among a number of skins collected at Kerrville, Texas, by Mr. Isadore Prions which I recently received

were a male Cliff Swallow taken April 23, and a female taken April 24, 1910, which I identified as this species. Mr. Oberholser, who has kindly examined them, agrees with me. This adds another species to our Check-List.—LOUIS B. BISHOP, *New Haven, Conn.*

The Bank Swallow at Savannah, Georgia.—On September 3, 1910, a Bank Swallow (*Riparia riparia*) was brought to me by Mr. Cord. Assendorf, Jr. As this is, so far as I know, the first record for the species in this locality it may be worth recording.—W. J. HOXIE, *Savannah, Ga.*

The Mockingbird near Boston.—In 'The Auk' for October, 1909, I recorded the breeding of a pair of Mockingbirds (*Mimus polyglottos*) in West Roxbury, Mass., last year. I have recently learned that a pair of these birds bred at Roslindale, about a mile and a half from this locality, in the spring of 1902. My informant is Mrs. Seriah Stevens of Roslindale, who published an account of the nesting in 'Zion's Herald,' a Boston Methodist weekly, for March 3, 1909. Mrs. Stevens assures me that the account there given is entirely true except as to the location of the nest, which was not on her own grounds, as stated for literary purposes, but elsewhere in the neighborhood. Four young were hatched, but when they were about half grown the mother bird was found dead near the nest. The male, however, brought up the brood and launched them from the nest. The father bird and two of the young were seen together near their old home as late as August of that year, but then disappeared and have not been seen there since. The male bird was the one recorded by me in 'The Auk' for July, 1902 (Vol. XIX, p. 292), as having been observed by me on March 23 of that year, and this is the reported unsuccessful nesting referred to in my note of last October.

In this connection I wish to report that the male which bred near my house last year remained in the neighborhood all the autumn and winter and began singing March 21 of this year, the exact anniversary of the beginning of his song the year before. He sang finely and imitated the notes of many birds not due to arrive here for a month or two later. In fact, he introduced imitations which I had not heard from him last year, exhibiting what seemed a remarkable memory for bird-notes. He sang every morning near the house for four weeks, but his mate never arrived and after April 19 he gave it up. I saw him once or twice afterwards and heard of him a few other times, but since about the middle of May he seems to have disappeared entirely. Another Mockingbird was seen in the Arnold Arboretum, about two miles and a half away, in winter and early spring by several observers. He sang freely in April but not very well and seemed not to imitate the notes of other birds. He was believed to be a young bird and very possibly was one of the brood raised by my pair. This bird also disappeared without having found a mate. All this goes to support the view held by Mr. Brewster (Birds of the Cambridge Region, pp. 62-64), that birds breeding beyond their normal

range are unlikely to found permanent colonies of regular summer residents.
— FRANCIS H. ALLEN, *West Roxbury, Mass.*

The Wood Thrush in Newbury, Vermont.—Newbury, Orange County, Vermont, is on the west bank of the Connecticut River, Newbury village being about 5 miles south of Wells River, which also is a part of the town of Newbury. From the meadows along the river, the land rises to a high bluff on which the village is situated, then still higher to the top of Mt. Pulaski, which is nearly a thousand feet above the sea. The house where I am spending the summer is among a growth of tall pines, spruces, oaks, birches, etc., at the foot of Pulaski slope. Before 7 A. M. July 4, 1910, many birds were singing about the house, among them the Hermit and Wilson's Thrush and White-throated Sparrow, when to my surprise I heard the Wood Thrush, which I had never heard in Vermont before. He sang four times; a day or so later, I saw a Wood Thrush.—ANNA E. COBB, *Providence, R. I.*

The Hermit Thrush Breeding in Litchfield County, Connecticut.—On July 23, 1910, I found a nest of a Hermit Thrush near the top of Bear Mountain, Litchfield County, Connecticut. The nest was about a half mile south of the Massachusetts line, and two or three miles east of the New York line, and at an altitude of about 2300 feet. The bird was flushed from the nest by a companion who was walking with me, and I had only a momentary glimpse of it as it flew away. Although I remained in the vicinity of the nest for quite a long time, the bird did not return, but the glimpse that I had was sufficient to show that it was neither a Wood Thrush nor a Wilson's Thrush. The locality and construction of the nest, and the size and color of the eggs, seem to conclusively establish that of the remaining possible thrushes, the bird must have been a Hermit Thrush. Dr. Louis B. Bishop, of New Haven, Conn., agrees with this identification, and tells me that it is the second record for Connecticut.

The nest was placed on a broad flat rock, under the shelter of a blueberry bush, and was embedded in gray moss. The nest was deeply cupped, and very neat. It was built externally of small sticks, most of them rotten and pulverized; the next layer was of grasses and fine twigs, with a good deal of green moss, and a few leaves, which, however, were not at all conspicuous, the moss being worked up around the edge of the nest, so that the general outer appearance of the nest was chiefly green. The nest was lined entirely, and very neatly, with long pine needles.

There were two fresh eggs in the nest, which measured .63 × .83 inches. They were a pale blue. Upon comparison with my series of eggs, I find that the blue is somewhat darker than that of a Bluebird, but fully as light as either a Robin's or a Wood Thrush's. Compared with the eggs of the Wilson's Thrush, the eggs are strikingly blue, and without any pronounced greenish tinge.—LOUIS H. PORTER, *Stanford, Conn.*

Notes from Grosse Isle, Michigan.—**Lophodytes cucullatus.** On July 5, 1909, James H. Fleming, P. A. Taverner, and I noticed a bird swimming in the Detroit River just outside of the strip of marsh below my place on the island which we took to be a grebe. Upon investigation we saw that it was a duck of some species, and Taverner took a canoe and secured it. It was a juvenile male Hooded Merganser in good condition but with a healed broken wing which accounted for its presence here at this time.

Dendroica discolor.—I saw at very close range, on Sept. 30, 1909, a Prairie Warbler on the edge of a low strip of woodland in the central section of Grosse Isle. The bird approached within about fifteen feet of me, and I could clearly make out the yellowish wing bars, the yellow superciliary stripe, and streaked sides. This bird was lingering somewhat later than it generally does in other localities. I am aware of no other county record in autumn. At Point Pelee, Ont., however, we have taken it Sept. 5, 1905, and August 15, 1908, and Saunders and Taverner have seen and heard birds that they were positive were this species on Sept. 6, 1905, and Sept. 20, 1906.—B. H. SWALES, *Grosse Isle, Mich.*

Notes from Connecticut.—As it will be at least a year before the 'List of the Birds of Connecticut' on which Mr. Sage and I have been at work can be ready for the press I have felt the following records were of enough interest to be recorded in 'The Auk.'

Fulmarus glacialis. FULMAR.—A male was shot off Stony Creek by Mr. A. H. Verrill on October 10, 1909, and brought to Dr. L. C. Sanford in the flesh. The latter showed it to me on October 12, just after he had finished making it into a skin. This is the first record for Connecticut, and it is remarkable that so pelagic a species should have wandered to Long Island Sound.

Somateria dresseri. AMERICAN EIDER.—Young King Eiders (*Somateria spectabilis*) often occur in late fall on the Connecticut coast, but the only record for the present species that I know of since 1877 (Merriam, Trans. Conn. Acad., IV, 1877, p. 127) is that of a young male which Mr. Alanson Ganung shot off West Haven on December 20, 1909, and very kindly gave me in the flesh.

Limosa fedoa. MARBLED GODWIT.—On August 26, 1909, Mr. William Ganung shot in West Haven an adult female Marbled Godwit and a young Western Willet (*Catoptrophorus semipalmatus inornatus*), and his brother, Alanson, brought them to me. Western Willets are by no means common, and this is the first occurrence of the Marbled Godwit, so far as I know, since Linsley's record (Am. Jour. Sci., XLIV, 1843, p. 267).

Aquila chrysaetos. GOLDEN EAGLE.—A young bird of this species was shot in East Haven on October 9, 1909, and brought to Dr. Sanford in the flesh.

Haliaeetus leucocephalus alascanus. NORTHERN BALD EAGLE.—A young female Bald Eagle, which was shot near Willimantic on October

27, 1909, by Mr. G. H. Champlin, I obtained in the flesh through the kindness of Mr. C. R. Hooker. This bird (length, 36.19, extent, 89, wing, 23.88, tail, 14.62, and exposed culmen, 2.52 inches) is so much nearer Bald Eagles from Alaska and British Columbia than to those from Virginia and Florida that I have referred it to *alascanus*.

In this connection I wish to correct my record of a Gray Sea Eagle (*Haliaeetus albicilla*) from British Columbia (Auk, XXII, 1905, p. 79), as I now believe, after a study of about forty of the two species in the collections of the American Museum of Natural History, Dr. Dwight and myself, that that eagle is merely a young *H. l. alascanus* in faded plumage. This Connecticut bird resembles even more closely young *H. albicilla* than does the British Columbia one, differing from it only in having the feathers of the nape and hind-neck longer and more lanceolate and the dark terminal markings of the scapulars and interseapulars more sharply defined.

Scotiaptex nebulosa. GREAT GRAY OWL.—Dr. Sanford showed me on April 13, 1907, a freshly mounted Great Gray Owl, the toes of which were still flexible, which he had just purchased at a restaurant in New Haven. This bird evidently had been recently killed, and Dr. Sanford was assured it was shot in East Haven the last of March. I know of no other certain record since Linsley (Am. Jour. Sci., XLIV, 1843, p. 253).

Acanthis hornemanni exilipes. HOARY REDPOLL.—Although Redpolls (*Acanthis linaria*) were formerly occasionally common in southern Connecticut and more rarely recorded in recent years, not until the fall of 1906 did I ever succeed in finding this species. On November 24 of that year while collecting in East Haven with my friend Mr. E. Seymour Woodruff, whose untimely death was a great and permanent loss both to his friends and to ornithology, we found a large flock of Redpolls and from it were fortunate enough to secure a single young female Hoary Redpoll, now in my collection. This is the first record in Connecticut.

Vermivora leucobronchialis. BREWSTER'S WARBLER.—Although I have collected near New Haven some twenty males of this phase of plumage of *V. pinus*, not until May 23, 1910, did I discover one without trace of yellow on back or lower parts. A rather interesting fact is that while practically all the others had the song of *V. pinus* this bird had that of *V. chrysoptera*, and had the wing bars of the latter.

What I believe is the first young bird to be recorded showing this phase of plumage is a young male which I collected in New Haven on September 12, 1907, in first winter plumage. On this the yellow below is much paler than in typical *H. pinus* and fades into white on the throat and sides of the neck.

Vermivora lawrencei. LAWRENCE'S WARBLER.—On May 20, 1909, I collected an adult male less than two hundred yards from where those recorded in 'The Auk' for 1906, Vol. XXIII, p. 345, were taken. This bird closely resembles that taken May 24, 1906, but the black of the throat is purer. The capture of three males at the same place in different years would tend to show that this phase of plumage is hereditary.

On June 4 of the same year, while collecting with Mr. Herbert K. Job in Woodmont, I obtained another typical male Lawrence's Warbler. After about two hours' search a female Blue-winged Warbler (*V. pinus*) was flushed from a nest containing 4 of her eggs and 2 of the Cowbird (*Molothrus ater*) about thirty feet from the tree where the male Lawrence's was shot. As no others of this genus were noted within a quarter of a mile I have no doubt these birds were mated. The nest, eggs and location were typical of *V. pinus*, as was to be expected. All are now in my collection.—LOUIS B. BISHOP, *New Haven, Conn.*

Seven Erroneous South and North Carolina Records.—In 'The Auk' for July, 1910, pp. 312-322, a list of birds, under the title 'Birds observed in the Carolinas,' is given by Mr. P. B. Philipp, and the following "records" are erroneous and need correction, viz.:

"23. *Rallus crepitans*. Clapper Rail. Very abundant in the extensive salt marshes around Charleston Harbor and Bull's Bay, S. C., where it was seen or heard daily June 10-15. One nest, with four fresh eggs, was taken June 14 on St. James [James] Island, S. C."

These Rails were all *Rallus crepitans waynei*, which is the resident breeding form.

"29. *Numenius longirostris*. Long-billed Curlew; Jack Curlew. A flock of six was seen June 12 on Bird Island Shoal, Bull's Bay, S. C. There is a persistent idea among fishermen and baymen of the region that this species breeds here; we did not find a nest, however, and did not hear of any nest ever being found."

The birds "seen" by Mr. Philipp were without doubt examples of *Numenius hudsonicus* which is always present during the entire month of June. *N. longirostris* [= *americanus*] has been extinct on the South Carolina coast for at least ten years — and *never bred*. (See Auk, XXIII, 1906, 59-61.)

"46. *Dryobates villosus*. Hairy Woodpecker. Not common at Lake Ellis, N. C. This species was recorded by Mr. Abbott as occurring in the heavy timber between Ellis and Great Lakes, where it was seen June 18. Another was seen feeding on a dead pine stump near Havelock, N. C., June 16."

Dryobates villosus does not, in my opinion, range as far south on the North Carolina coast as latitude 36° N., the resident breeding form being *Dryobates villosus auduboni*.

"67. *Pipilo erythrophthalmus*. Towhee. Common among the Sea Islands, S. C. Particularly noted June 15 on St. James [James] Island, where a pair with a brood of young were seen."

The resident breeding form is *Pipilo erythrophthalmus alleni*.

"72. *Riparia riparia*. Bank Swallow. Uncommon and unusual during the summer in the Sea Islands, S. C. Two were seen by Mr. Abbott on St. James [James] Island, June 15."

The birds recorded by Mr. Philipp, as well as those "seen" by Mr.

Abbott, were representatives of the Rough-winged Swallow (*Stelgidopteryx serripennis*).

"85. *Geothlypis trichas*. Maryland Yellow-throat. Common among the Sea Islands and on Raccoon Key[s], Bull's Bay, S. C., where it was seen June 12-15."

The resident breeding form is *Geothlypis trichas ignota*, and all birds "seen" were of this race.

"91. *Telmatodytes palustris*. Long-billed Marsh Wren. A Marsh Wren was very common in the marshes around Bull's Bay, S. C., and the rookeries on Secessionville and St. James [James] Island. Seen and heard June 10, 11, and 15. None was collected, and the form is doubtful. No nests were found and no young seen."

The form is by no means "doubtful," for they were all representatives of *Telmatodytes palustris griseus*.

It is indeed remarkable that the birds mentioned by Mr. Philipp, during five days spent on the South Carolina coast, and as merely having been "seen," should have escaped my notice during more than forty-seven years spent in and about Charleston.

In his account of 'Bird Photographing in the Carolinas' (Auk, XXVII, July, 1910, 305), Mr. B. S. Bowdish says: "As we passed out from the dock [Charleston] we took several memento views of the water-front, the customhouse, and a lighthouse relief ship. Further down the bay we caught snaps of historic old Fort Sumter where was fired the first gun in the Civil War, and a little further out met a torpedo boat destroyer coming in." In order that history may not be perverted I will state that the "first gun" in the great Civil War was fired on January 9, 1861, from the battery on Morris Island occupied by Citadel cadets under command of the late Bishop (Maj.) P. F. Stevens, and was directed at the 'Star of the West,' a United States steamer that was trying to enter Charleston Harbor to re-inforce Fort Sumter, commanded by Maj. Robert Anderson.

More errors could be corrected in Mr. Philipp's list, but these are mostly minor errors.—ARTHUR T. WAYNE, Mount Pleasant, S. C.

RECENT LITERATURE.

The A. O. U. Check-List of North American Birds. Third Edition.¹—The third edition of the A. O. U. Check-List was authorized at the stated meeting of the Union held in November, 1905, when also a committee was appointed to consider the A. O. U. Code of Nomenclature, and report what changes in the Code, if any, seemed necessary to better adapt it to present day needs. The Code committee later recommended a number of modifications, mainly in the nature of amplification and explicitness of statement. The chief modification was the adoption *en bloc* of Rule 30 of the International Code of Zoological Nomenclature, as revised at the Seventh Congress held at Boston in 1907, in relation to the determination of types of genera. This rule was virtually the same in effect as the rules on this subject in the original A. O. U. Code of 1886, and hence served to confirm the type designations of the first and second editions of the Check-List, with only the two or three exceptions subject to a special provision. As a result of the committee's work, a revised edition of the Code was published in July, 1908.

The committee in charge of the preparation of the new edition of the Check-List devoted nearly four years to the work, notwithstanding the labor was divided among several subcommittees, to whom great assistance was rendered by other members of the Union. Every detail of nomenclature, the verification of references, and the geographical distribution of the species and subspecies received the most thorough consideration, the time and labor expended on this new edition probably greatly exceeding that given to the preparation of both the preceding editions and their supplements.

The new edition differs from previous editions in several important particulars, both typographically and otherwise, as follows:

(1) Subspecies are distinguished from species by having all the matter relating to them printed in smaller type than that pertaining to species.

(2) In the case of composite or polytypic species, the range of the group as a whole is briefly given, under the name of the species, which serves as a caption for the group, the North American subspecies of the group following in due sequence, with their respective ranges stated in detail. In

¹ Check-List | of | North American Birds | Prepared by a Committee | of the | American Ornithologists' Union | Third edition (revised) | — | Zoological Nomenclature is a means, not an end, of Zoological Science | — | New York | American Ornithologist's Union | 1910 — 8vo, pp. 1-430, and 2 maps of North America, one colored, to show the life zones, the other plain, giving localities. August, 1910. \$2.50.

American Ornithologists' Union | Abridged | Check-List | of | North American Birds | — | From the | Third Edition | — | New York | American Ornithologists' Union | 1910 — Pocket Edition, 3½ by 6 inches, pp. 77, printed only on the right hand page. August, 1910. 25 cents; 10 copies, \$2.00.

these the general range is first indicated, then the breeding range and the winter range, and finally the localities of its casual or accidental occurrence.

(3) The species are not numbered, and subspecies are designated by letters. The numeration of the previous editions is given at the right of the English name, in brackets, as a concordance. The old enumeration is thus available for use.

(4) The concordance to previous Check-Lists (those of Baird, Coues, and Ridgway) is omitted.

(5) The secondary references under species and subspecies are also omitted, only the reference to the place of original description being given.

(6) This reference is followed by a statement (in parenthesis) of the type locality of the species or subspecies, usually as given by the original author, but in many cases in more definite and exact terms.

(7) The type species of each genus and subgenus is not only given as before, but the manner in which it came to be the type is also stated, this being an item of information of the utmost interest to the nomenclator.

(8) The generic and specific names are marked for accent.

(9) Two maps are included, the first, bound in as a frontispiece, is printed in color to show the life zones of North America; the other, uncolored, and placed at the beginning of the systematic list, gives the localities especially mentioned in the Check-List, particularly type localities and others zoologically of historic interest, many of which are not indicated on modern maps.

(10) A further departure from previous editions is the elimination of all the species resting solely on the unconfirmed records of Giraud's 'Birds of Texas,' and of a few others included on early unsatisfactory records still unconfirmed, and which, in the light of present knowledge, seem highly improbable.

The geographical boundaries of the Check-List remain as heretofore, that is, they include Greenland and the peninsula of Lower California. The classification is also unchanged — a feature that may evoke more or less criticism in certain quarters. The preface, however, thus states the case: "It was at first the intention of the Committee to modernize the sequence of the groups. The fact, however, that the present systems of classification in ornithology are admittedly tentative, and differ widely among themselves, it seemed best, from the standpoint of convenience, to continue the old Check-List system unchanged, since the users of the Check-List are familiar with the present order of arrangement and would regret the annoyance that a radical change from it would cause. In deference to this known widespread preference, the old order of arrangement has been continued." Preference is expressed, however, for the well known Gadow system, with modifications, an abstract of which system is given, with the Check-List equivalents added in brackets.

For a similar reason it was decided to refrain from giving a new consecutive numbering to the species, since it would necessarily differ widely from that of previous editions, owing to the interpolation of thirty-four

species and the elimination of a considerable number of others since the publication of the first edition twenty-four years ago.

The first edition of the American Ornithologists' Union Check-List of North American birds (1886) contained 768 species, serially numbered, and 183 subspecies, indicated by the letters *a*, *b*, *c*, etc., placed after the species number, which was repeated for each subspecies. The number of forms recognized was 951. Of this number 82 species were indicated (by the species number being inclosed in brackets) as of merely casual or accidental occurrence, leaving only 869 forms that were to be regarded as properly North American birds.

The second edition (1895), published nine years after the first, contained 799 species and 269 subspecies, making a total of 1,068 forms, a net gain of 31 species and 86 subspecies, or 117 forms.

The third edition (August, 1910), appearing fifteen years after the second, contains 802 species and 394 subspecies—a total of 1,196 forms (1,200 in round numbers). This is a net gain over the second edition of 3 species and 125 subspecies.

A comparison of the third edition with the first shows that in the twenty-four year interval the net gain has been 34 species and 211 subspecies.

- Many more than these numbers have been added, but a large number of species and subspecies have also been eliminated. Thus in the second edition, while 38 species and 83 subspecies were added, 7 species and 3 subspecies included in the first edition were either eliminated or changed in status. In the third edition, there were numerous changes of a similar character.

It is difficult to summarize all of the varied and numerous changes in respect to species and subspecies that have been made in the gradual evolution of the Check-List from the first edition to the third. An approximate analysis is attempted in the following table, with a deep consciousness of the liability of there being in it a small percentage of error.

First Edition.

Number of species	768
“ “ subspecies	183
Total number of forms	951

Second Edition.

Number of species	799
“ “ subspecies	269
Total number of forms	1068
Species omitted	7
“ added	38
“ net increase	31
Subspecies added	90
“ omitted	4
“ net increase	86

Third Edition.

Number of species	802
“ “ subspecies	394
Total number of forms	1196
Species omitted	20
“ added	23
“ net increase	3
Subspecies added	148
“ omitted	14
“ raised to species	4
“ net gain	130

General Summary.

Total net increase, species	34
“ “ “ subspecies	211
Total species added	83
Species removed (as synonyms, 5; as extralimital, 15; as hybrids, 3)	23
Species reduced to subspecies	26
Total subspecies added	247
Subspecies raised to species	5
“ reduced to synonyms	31
Total species of casual or accidental occurrence (numbers in brackets)	119
Brackets removed from	17
Bracketed species eliminated	14
“ “ remaining in 3d ed.	88

The most obtrusive changes, as well as the most unwelcome, in the several editions of the Check-List, are those of nomenclature. They are due to a better understanding of the status and relations of the elements that enter into the Check-list, from subspecies to families, due to increase of material and more thorough acquaintance with the literature of the subject, and to the strict enforcement of currently accepted rules of nomenclature. These may be tabulated with approximate accuracy as follows:

Family names changed	5
Subfamilies raised to families	10
Subfamily names added	3
Generic names changed	60
Subgenera raised to genera	34
Genera added	8
Subgenera added	8
Specific names changed	52
Subspecific names changed	38

The change of method in the treatment of composite or polytypic species introduced in the third edition has added greatly to the number of trinomial names. In former editions all specific groups which were represented in the Check-List fauna by only a single form were designated by binomial names, the additional subspecies by trinomial. Thus *Uria troille* of former editions is now *Uria troille troille*, to render the name distinctive of the particular form of the group referred to, while the species name stands as a heading or caption for its subspecies as a group, whether, as in other cases, the group consists of two subspecies or more. This method is also applied to composite species represented in the Check-List by a single subspecies, as in the case of *Colymbus nigricollis*, where the earliest-named, or "typical," subspecies is extralimital; but it is not introduced where the group is represented by a single subspecies which happened to be the first-described form of the group,¹ as in cases like *Spinus pinus*, etc. The introduction of this method has increased the number of trinomials over previous editions by the addition of 232. In 65 of these cases the 'type' subspecies is "North American" (in the sense of the Check-List), and in 65 cases extralimital. (In the preceding table, under subspecies, these 232 trinomials are not included.)

Of the 802 species in the third edition, 611 are monotypic and 191 polytypic, as regards their representation in the Check-List. Of the 191 polytypic species, 102 have each only a single additional subspecies, 47 have 2 each, 15 have 3 each, and 27 have 4 or more each. The following have the highest numbers: *Lagopus rupestris*, 6; *Otus asio*, 8; *Dryobates villosus*, 7; *D. pubescens*, 5; *Otocoris alpestris*, 13; *Agelaius phoeniceus*, 7; *Junco hyemalis*, 9; *Melospiza melodia*, 19; *Passerella iliaca*, 7.

The relationships and relative importance of the more than 600 subspecies included in the Check-List is clearly set forth through the use of the trinomial system, since if all the forms which are considered as entitled to a place in the list were given binomial names, as some ornithologists insist is the only satisfactory way of recording them, slightly differentiated intergrading forms, that even the expert finds difficulty in distinguishing, would have the same apparent value as wholly isolated and strongly characterized congeneric species. While it may be difficult for even a committee of experts always to determine with exactness the proper status of certain obscurely differentiated forms, their errors are not likely to be numerous, and are far more than offset by the guidance afforded to the uninitiated in the multitude of other cases that can be determined beyond reasonable doubt. The relatively few changes that have been made in the Check-List in the status of species and subspecies have been mostly in

¹ This is an inconsistency, due perhaps to oversight, as this innovation was not adopted till the first half of the Check-List was already in galley proof. In cases like *Spinus pinus* the name should be *Spinus pinus pinus*, to indicate unequivocally that the form referred to is only the typical race and does not include *Spinus pinus macropterus*; and similarly in all parallel cases.

cases where material for their investigation was in the first instance scanty and later became more adequate.

It is of interest to note that most of the species added to the Check-List since the publication of the first edition have been either waifs and strays from extralimital regions, or insular forms from the Aleutian Islands, or species recently described from the peninsula of Lower California and its contiguous islands. By far the greatest part belong to the category of accidental species pertaining properly to the fauna of Europe and Asia but occurring casually in Greenland and Alaska, or West Indian and Mexican species of casual occurrence within the Check-List limits, and a few that have been found to range slightly beyond the northern border of Mexico. Nearly one-half of these additions are water birds, as petrels (*Tubinares*), ducks and geese (*Lamellirostrres*), and shore birds (*Limicolæ*); several others are West Indian pigeons and swallows.

The species of merely casual or accidental occurrence within the Check-List limits (indicated by the enclosure of the number designating them in brackets in the first and second editions, and as bracketed insertions in the third edition) form, owing to their large number, a rather prominent feature of the list, the total (including all the editions) being 119. Of these 88 are still retained, the others proving to have been improperly included. This is only six more than the number contained in the first edition, but the constituency of the bracketed list has been much changed by additions and eliminations. This feature, in fact, serves as an indication of progress in our knowledge of North American birds. Thus it has been found proper to remove the brackets in the case of 17 species given as bracketed species in the first and second editions, these species, though rare, having proved to be of sufficiently frequent occurrence to be regarded as proper elements of the Check-List fauna. At the same time 14 others have been wholly eliminated as being without a satisfactory record of occurrence within the limits of the Check-List, while 28 others have been added on the basis of authentic records of capture.

The Hypothetical List also shows changes of similar character, it numbering 26 species in the first edition, 27 in the second, and 20 in the third, notwithstanding the addition of 5 species in this edition. Of the total of 34 species referred to it, 3 have been transferred to the main list and 11 eliminated as having not even a hypothetical claim to recognition as species of the Check-List area.

The List of Fossil Birds has nearly doubled since the first edition, has been reclassified, and otherwise made more satisfactory and useful. From 46 species in the first edition the list increased to 64 in the second, and to 72 in the third, which comprise all of the known fossil birds of North America to the close of the year 1909.

It would be out of place for the present writer to dilate on the merits of the 'New Check-List,' which will doubtless be welcomed as bringing together in convenient order the numerous additions and nomenclatorial changes previously scattered through eight Check-List Supplements.

In the final revision of the manuscript for the press a few changes were made subsequent to the publication of the last (Fifteenth) supplement, consisting in the addition of one species and one subspecies, the elimination of one or two species and subspecies (among others the Harpy Eagle), the reduction of one species to a subspecies, and one change of nomenclature.¹

A word should be said, however, in reference to the revision of the ranges of the species and subspecies. This has entailed a vast amount of original research, not contemplated by the committee at the beginning of its work, the revision having for its basis not only all published records but the data collected during the last twenty-five years by the Bureau of Biological Survey, for the most part unpublished. The committee, and all who may make use of the Check-List, owe an immense debt of gratitude to the Chief of the Survey and his assistants for the vast amount of labor they have expended in perfecting this important feature of the Check-List, and for use of the map showing the life zones of North America, revised to date.—J. A. A.

Wayne's 'Birds of South Carolina.'²—Through thirty years of almost continuous observation in the vicinity of Charleston, the author of the present work has acquired a knowledge of the ornithology of the coast region of South Carolina that makes the field peculiarly his own. Notes from his pen regarding the birds of this region have appeared in 'The Auk' and other ornithological journals with increasing frequency since about 1886, adding some thirty species to the known avifauna of South Carolina, correcting numerous erroneous records for the State, and greatly increasing our knowledge of the life histories of many of the rarer species. Mr. Wayne began serious work in ornithology at the time of Mr. William Brewster's visits to the vicinity of Charleston in 1883, 1884, and 1885, where they together rediscovered Swainson's Warbler, and made known its nest and eggs and breeding habits. As their relations have since been more or less intimate it is very appropriate that the present volume should be dedicated to Mr. Brewster.

The author tells us that his original plan was to treat only the birds of the coast region, but through the solicitation of ornithological friends he has added "an annotated list of additional species of the Piedmont and Alpine regions, not found in the coast region." The book relates mainly,

¹ Added: (1) *Falco tinnunculus*, (2) *Tangavius æneus æneus*; added to Hypothetical List: (1) *Anas rubripes tristis*, (2) *Pisobia ruficollis*. Omitted: (1) *Sterna fuscata crissalis*, (2) *Ægialitis meloda circumcincta*, (3) *Thrassaëtos harpyia*, (4) *Colaptes chrysoides brunnescens*. Reduced to subspecies: (1) *Macrorhamphus scolopaceus*. Changes in nomenclature: *Falco dominicensis* changed to *Falco sparverioideus*, as in first edition.

² Contributions from the Charleston Museum | Edited by Paul M. Rea, Director | I | Birds | of | South Carolina | By Arthur Trezevant Wayne | Honorary Curator of Birds in the Charleston Museum | With an Introduction by the Editor |—| Charleston, S. C. | 1910—8vo, pp. xxi + 254. Paper, \$2.75; cloth, \$3.25.

therefore, to the coast districts, the author's special field of research, only ten pages being given to a consideration of birds peculiar to the more elevated interior parts of the State.

The introduction, prepared by Prof. Paul M. Rea, at the request of the author, who was prevented from writing it by prolonged illness, treats of the 'Physical Divisions of South Carolina,' and the 'History of Ornithology in South Carolina' (pp. xi-xxi). The latter begins with the early explorations of the middle of the seventeenth century and to the time of Catesby, whose well known work, 'The Natural History of South Carolina, Florida, and the Bahama Islands,' was published in London, 1731-1748. Aside from a slight contribution by Bartram, in 1791, little was added to the history of the birds of the State till the appearance of Audubon's 'Birds of America' and 'Ornithological Biography,' 1831-1839, who, with the assistance of Bachman, made the vicinity of Charleston "a classic field in American ornithology." Compared with the ornithological methods of the present day, their work was naturally superficial and to some extent inaccurate in statement, which faults are corrected in the present work in rigid detail. Later Mr. L. M. Loomis worked with great care and thoroughness, from 1876 to 1892, in the vicinity of Chester in the interior, while within this interval Mr. Brewster published the results of his visits in 1883-1885 to the Charleston region, and Mr. Walter Hoxie (1886-1892) published notes on various birds observed near Frogmore. Mr. Wayne, however, has been our chief contributor to the ornithology of eastern South Carolina. It is therefore exceedingly fortunate that the results of his work are now made available in a connected and permanent form.

The number of species here recorded for the coast region is 309, with a supplemental list of 28 species from the interior of the State, and a 'Hypothetical List' of 22 species, many of which will doubtless be later found to occasionally visit portions of the State. There are late (mostly 1910) records and notes relating to 12 species in 'addenda,' and the work closes with a bibliography of South Carolina ornithology numbering about 200 titles, and a very full index.

As to the form of the book, it is not a 'manual,' since it gives no descriptions or keys of the birds recorded, the text relating wholly to the manner of occurrence of the species, but there are many extended references to habits, and descriptions of nests and eggs, based on the personal experience of the author. It thus abounds in fresh information concerning the life histories of South Carolina birds. Mr. Wayne's long experience and great familiarity with the region about Charleston seems to have inspired him with great confidence in the completeness of his researches, and that what has not come to his personal knowledge in relation to the birds of the coast region is not likely to be true. In other words, his attitude of censorship of what has been recorded by others is perhaps in some instance too severe. A record may sometimes be accepted, if not entirely improbable, when it is not backed up by a specimen in proof of it. But on the whole

his conservatism in such matters is admirable, and has resulted in a solid foundation for the addition of future increments to our knowledge of South Carolina birds.—J. A. A.

Scott's Ornithology of Patagonia. Part II.—We have recently received Part II of the volume devoted to Ornithology in the Reports of the Princeton University Expeditions to Patagonia, 1896-1899,¹ issued March 3, 1910. Part I (pp. 1-112) was issued in 1904, the long interval between the publication of Parts I and II being due mainly to Mr. Scott's long continued ill health.² As part I was noticed at some length in this journal (Vol. XXII, Jan., 1905, pp. 96, 97), in which the origin and general character of the work was fully stated, it is sufficient to say that Part II conforms to the standard established in Part I, and deals with the families Procellariidæ, Laridæ, Stercorariidæ, Chionididæ, Thinocorythidæ, and Charadriidæ" (= Hæmatopodidæ, Aphrizidæ, Charadriidæ, Scolopacidæ). The nomenclature and classification are naturally the same as in Sharpe's 'Handlist of Birds.' As in Part I, the bibliographic citations are very full down to about 1902, but we miss references to the reports of the later Antarctic expeditions, as the Scotch, French, German and Swedish, published from about 1904 to 1908, and to Godman's recent 'Monograph of the Petrels.' References are made, however, to a few important works and papers published as late as 1909, and others in 1907.

The illustrations are mainly text figures of heads, feet, wings, tails, etc., but comprise about a dozen full-length figures, drawn by H. Grönvold, and mostly printed as uncolored full-page plates, numbered consecutively with the text illustrations as figures.

The work forms an exceedingly useful compendium of Patagonian ornithology, and we hope that the manuscript was left by the author in such shape that its completion will be only a matter of time.—J. A. A.

A Biography of William MacGillivray.³—The personality of William MacGillivray is of special interest to American ornithologists through his

¹ J. Pierpont Morgan Publication Fund |—| Reports of | The Princeton University Expeditions | to Patagonia, 1896-1899 | J. B. Hatcher, in Charge | Edited by | William B. Scott | Blair Professor of Geology and Palæontology, Princeton University | Volume II—Ornithology | Part II. | Procellariidæ—Charadriidæ | By | William Earl Dodge Scott | Princeton University | associated with | R. Bowdler Sharpe | British Museum of Natural History | Princeton, N. J. | The University | Stuttgart | E. Schweizerbartsche Verlangshandlung (E. Nögele) | 1910—4to, pp. 113-344, fig. 67-174. "Issued March 3, 1910."

² Mr. Scott, we regret to announce, died August 23, 1910. (See below, p. 486.)

³ Life of | William MacGillivray | M. A., L. L. D., F. R. S. E.; Ornithologist; Professor of | Natural History, Marischal College and | University, Aberdeen | By William MacGillivray, W. S. | Author of "Rob Lindsay and his School," etc. | With a Scientific Appreciation | by J. Arthur Thomson | Regius Professor of Natural History, Aberdeen University | With Illustrations | "In the eye of Nature he has lived." | London | John Murray, Albemarle Street, W. | 1910—8vo, pp. xv + 222, and 12 half-tone plates. . 10s 6d. net.

association with John James Audubon in the preparation of his great work on the Birds of North America. The story of this relationship has often been told, but never with the fullness and detail here given. As is well known, Audubon was indebted to MacGillivray for his classification and nomenclature, and it is here stated MacGillivray himself wrote the 'Synopsis,' published in 1839.

The author of the present work, a namesake of the great naturalist, says in the introduction: "No detailed biography of Professor MacGillivray has ever been written, and the materials for such do not now exist. From an early period he kept careful journals of his life and work, and from these a biography of great interest and value could have been compiled; but unfortunately all but two volumes were accidentally destroyed by fire in Australia many years ago. I recently discovered that two volumes in MacGillivray's neat and careful handwriting remained in the possession of the family of the late Dr. Paul MacGillivray, an eminent surgeon in Australia, son of the Professor, and having been allowed the privilege of perusing them, . . . I shall make use of them freely in the following narrative." These relate to his residence and travels in the Hebrides, from August 3, 1817, to August 13, 1818, and to a journey in Scotland and England in 1819. Copious extracts are given from these precious volumes in the present work.

William MacGillivray was born in 1796, in Aberdeen, the son of a surgeon in the army, who lost his life at the battle of Corunna in January, 1809, when William was thirteen years old. His boyhood days were spent with relatives on the island of Harris, returning to Aberdeen for his further education when twelve years old, and after finishing his course at King's College began the study of medicine. The fifty-six years of MacGillivray's life are divided in the present narrative into five periods. The first includes his boyhood on the island of Harris; the second, his university life at Aberdeen; the third, the "Edinburgh Period," from his marriage in 1820 to 1831; the fourth, his conservatorship at the Museum of the Edinburgh College of Surgeons (1831-1841), which covers the preparation of the earlier volumes of his 'History of British Birds' and his work with Audubon; the fifth, his professorship in Marischal College and University at Aberdeen (1841-1852). These five chapters form the first 113 pages of the present volume, and are followed by an appreciative chapter on his scientific work (pp. 114-158) by Professor Thomson, of Aberdeen University, and by extracts from MacGillivray's works (pp. 159-214), illustrative of his attainments as an all-round naturalist and his fine traits of character. The text is appropriately illustrated with twelve half-tone plates, eight of which are reproductions of some of MacGillivray's drawings of birds, now in the British Museum; others give a view of King's College, Aberdeen, of the gateway at Marischal College, a winter scene in the Chanoury, Old Aberdeen, where MacGillivray lived for a time, and a facsimile of a letter written by MacGillivray in 1834, now in the collection of Mr. Ruthven Deane, and loaned for use in the present connection.

Although confessedly imperfect and fragmentary, this contribution to our knowledge of MacGillivray, "the greatest and most original ornithologist of his day," will be welcomed as portraying the main features of his life and character — his unusual gifts and endearing personality. — J. A. A.

Penard's Birds of Guiana, Volume II. — As stated in our notice of the first volume (Auk, XXV, Oct., 1908, p. 491), this work¹ is based on first-hand knowledge gained by the authors during a twelve years' residence in Dutch Guiana, and who write of the birds of this interesting country from personal study of them in life. The present volume includes the species from the Toucans to the Thrushes or the Picariæ and Passeres, of which a dozen species are described (some of them tentatively) as new. The general character of the work is stated in our notice of the first volume. We congratulate the authors on the completion of this important contribution to tropical American ornithology, a work which must form a very useful handbook for the residents of Guiana. — J. A. A.

Hartert's 'Die Vögel der paläarktischen Fauna.' Heft VI.² — Part VI carries the work to the end of the Passeres and completes the first volume, for which is issued with this double part a title-page and index. It contains the last half of the author's Muscicapidæ (= Sylviidæ, Timeliidæ, and Turdidæ of authors), the Accentoridæ, Troglodytidæ, and Hirundinidæ, or Nos. 987–1240, beginning with the genus *Turdus*. The table of contents of Volume I occupies pp. xiii–xlix, with which is incorporated as footnotes critical references to the literature bearing on the ornithology of the 'Palæarctic Fauna,' from 1903 to the end of the year 1909. These notes deal with questions of synonymy and nomenclature as well as with the status and relationship of the many forms described since the publication of the first five parts of the 'Fauna.' Among the changes of nomenclature are *Acanthis linaria* in place of *A. flammea*; *Muscicapa hypoleuca* (Pallas, 1764) in place of *M. atricapilla*; *Sylvia cantillans* (Pallas, 1764) in place of *S. subalpina*. Many of the recently described forms are accepted, but a much larger number are consigned to synonymy. Nearly a dozen new subspecies are added in the text and footnotes of the present part, which

¹ De Vogels van | Guyana | (Surinam, Cayenne, en Demerara) | Door | Frederik Paul Penard | en Arthur Philip Penard | — | Tweede Deel | [Design] Uitgave van | Wed. F. P. Penard | Paramaribo — 8vo., pp. 587, with numerous half-tone text illustrations. On the reverse of the title page it is stated that the first part was published in April, 1908, and the second in May, 1910. Neither volume is dated on the title page.

² Die Vogel der paläarktischen Fauna. Systematische Übersicht der in Europa, Nord-Asien und der Mittelmeerregion vorkommenden Vögel. Von Dr. Ernst Hartert. Heft VI (Doppelheft). Seite 641–832. Mit 10 Abbildungen. Berlin, Verlag von R. Friedländer und Sohn. Agents in London: Witherby & Co., 326 High Holborn. Ausgegeben im Juni 1910. — 8vo, pp. xiii–xlix + 641–834, fig. 125–134. Heft VI, 8s., postage 3d. Vol. I, 28s., postage 1s. 8d.

conforms in general character with its predecessors. The families and genera, as well as the species, comprise in a number of instances several groups that are usually accorded, respectively, independent rank. All the true thrushes, for example, are referred to *Turdus*, and all the true wrens to *Troglodytes*.

In respect to matters of nomenclature, the name *Prunella* properly displaces *Accentor*, and the name of the family becomes Prunellidæ. *Chelidon* Forster replaces (and we fear with good reason) *Hirundo* for the *H. rustica* group, and *Hirundo* is again assigned to the House-Swallow or the *urbica* group. Among the new subspecies we note an Irish race of the Dipper (*Cinclus cinclus hibernicus*), based on specimens from County Cork, Ireland. The British Islands now have two insular races of the *Cinclus cinclus* group, the other being *C. c. britannicus* Tschusi.—J. A. A.

Ogilvie-Grant's 'A List of British Birds.'¹—This list is in tabular form and is admirably arranged to show concisely and at a glance the status of each species as a bird of Great Britain: as to whether it is (1) resident and breeds, (2) a regular summer visitor that breeds, (3) a regular autumn, winter or spring visitor that does not breed, (4) an occasional visitor that formerly bred, or (5) an occasional visitor never known to breed. "When species have not occurred more than six times references are given to the works in which they have been recorded." Species of doubtful record and species artificially introduced are entered in the list in brackets and are not numbered. The species known as British birds number 442. The list is printed with one side of the leaf blank, so that it can be cut up for labelling. The nomenclature is binomial, even in the case of local subspecies; in each such instance, however, the name is followed by the statement, in a separate line, "A sub-species of" (whatever the species may be), or by formulæ like this: "*Parus ater*, Linn." followed by, in a separate line, "The Continental form," and "*Parus britannicus*, Sharpe and Dresser," followed by, in a separate line: "British sub-species of *P. ater*." This may be soothing to the feelings of those who dislike trinomials; but the general disregard of all modern codes of nomenclature, incidentally, throughout the list will not be soothing to those who have regard for correct nomenclature. The desirability thus recognized of explaining the relative status of forms here designated by binomials is an admission of the utility in such cases of the trinomial method.—J. A. A.

Felger on the Birds of Northwestern Colorado.²—This is a briefly annotated list of 133 species, collected or observed on a scientific expedition

¹ A List of British Birds showing at a glance the exact status of each species | Revised to August 1910 | By | W. R. Ogilvie-Grant | — | For labelling specimens or for reference | — | Witherby & Co., 326, High Holborn, London, W. C. | 1910.—Svo, pp. 60. 1s. 6d; postage 2d. extra.

² Birds and Mammals of Northwestern Colorado. By A. H. Felger. University Studies of Colorado Museum, Vol. VII, No. 2, pp. 132–146. January, 1910.

to northwestern Colorado in 1909, under the auspices of the University of Colorado Museum, chiefly in Garfield, Rio Blanco, and Routt counties. As the work of the expedition was mostly done between 5,500 and 8,000 feet altitude, very few alpine forms are recorded. A large number of the species are entered on the authority of Mr. R. S. Ball of Meeker, who has a private collection of birds and mammals. This number of the 'University Studies' (pp. 101-153, with numerous illustrations) is devoted to an account of this expedition, and consists of ten papers on different subjects including itinerary, climatology, botany, mollusks, insects, vertebrates, fossil plants and fossil invertebrates, and a bibliography of the geology and natural history of the region, the reports on the birds and mammals being by Mr. Felger. The expedition was under the direction of Prof. Junius Henderson, and appears to have been fruitful in results.—J. A. A.

Wood on Bird Migration at Point Pelee, Ontario, in the Fall of 1909.¹—This is a detailed daily record of observations made from September 14 to October 16. The advantages of Point Pelee as an observation point for bird migration is due to the fact that here "the migrating hords are concentrated in a small area that can be readily covered by a single observer." The observations are given in the form of a diary, noting the changes from day to day in the relative abundance of the prevailing species. The great fall flight of hawks passed this point mainly during September 18, 19, and 20.—J. A. A.

Jouy on the Paradise Flycatchers of Japan and Korea.²—As explained in an introductory note by Dr. Stejneger, this is a fragment of manuscript left in his hands, with other memoranda and note-books, by the late Pierre Louis Jouy shortly before his death in 1894, with the request that Dr. Stejneger should work up his collection of Korean birds and publish the results. This having proved impossible of accomplishment owing to the pressure of other duties, the present paper, nearly as left by Mr. Jouy, is now published, and serves to indicate how elaborately he had planned the work.

The two species here treated are *Terpsiphone atrocaudata* (Eyton), found in southern Japan and southern Korea, and *Terpsiphone owstoni* sp. nov., inhabiting Hondo Island and parts of China. The descriptions are very detailed, and accompanied by extensive tables of measurements. Dr. Stejneger explains in a footnote the use of *Terpsiphone* in place of *Tchitrea*, under Article 30 of the International Code of Zoölogical Nomenclature.—J. A. A.

¹ Bird Migration at Point Pelee, Ontario, in the Fall of 1909. By N. A. Wood. Wilson Bulletin, June, 1910, pp. 63-78, with map.

² The Paradise Flycatchers of Japan and Korea. By Pierre Louis Jouy. Proc. U. S. Nat. Mus., No. 1721, Vol. XXXVII, pp. 651-655. Published August 4, 1910.

Sclater's Revised List of the Birds of Jamaica.¹—The present List is a "second edition" of the list prepared by the brothers Alfred and Edward Newton for the 'Handbook of Jamaica' for 1881, brought down to date. The principal papers on Jamaican birds are cited in the introductory, special commendation being given of Mr. W. E. D. Scott's 'Observations on the Birds of Jamaica' published in 'The Auk' for 1891, 1892, and 1893, and made in the winter of 1890-91. The present list numbers 194 species, of which 99 are given as constant residents, 52 as winter visitors, and 43 as occasional visitors. Of the 99 constituting the first class, 42 are absolutely confined to Jamaica, and 57 range more or less widely outside of the island. The list is briefly annotated, in reference to the manner and season of occurrence of the species, and there are references under each to the principal places of previous record. The nomenclature is not modern. The list is, however, a useful and convenient summary of Jamaican ornithology.—J. A. A.

MacSwain's 'A Catalogue of the Birds of Prince Edward Island.'—This list,² based on the field notes of the author covering the period 1895-1907, contains 203 species, with supplementary lists containing 17 species previously recorded by other observers, making a total of 220 species thus far known to occur on the island. One, however, is entered twice, once in the main list as *Ammodramus caudacutus subvirgatus* and again in the supplementary list as *Ammodramus nelsoni subvirgatus*! The nomenclature is that of the second edition of the A. O. U. Check-List, and a subsequent change in the name of this form has evidently misled the author. The list is briefly annotated, and is followed by migration tables giving the dates of arrival of some 30 species, as observed by the author, from 1895 to 1905. Of special interest is the following record of the Storm Petrel (*Procellaria pelagica*, p. 572): "One was stuffed by Calder and sent to the museum of the Truro Academy in the autumn of 1905. Two were blown ashore on the north coast of the Island during the great November gales of 1906, and were brought to Mr. Calder." It may be noted that Leach's Petrel (*Oceanodroma leucorhoa*) is not included in the main list but is recorded in the second supplemental list as "Occasionally blown ashore during storms (Bain)." An examination of the specimen at the Truro Academy by a competent expert would be of interest, as there seems to be no other positive record of the occurrence of the Storm Petrel on the American coast.—J. A. A.

¹ Revised List of the Birds of Jamaica. By P. L. Sclater, Dr. Sc., F. R. S. 8vo, pp. 24. Reprinted from the 'Handbook of Jamaica' for 1910.

² A Catalogue of the Birds of Prince Edward Island. By John MacSwain, Charlottetown, P. E. I. Proc. and Trans. Nova Scotia Institute of Science, Vol. XI, part 4, pp. 570-592. August, 1908.

Hardy's Reminiscences of Andrew Downs.¹—These reminiscences are based on a long personal acquaintance with this remarkable man while General Hardy was stationed at Halifax on military duty about the middle of the last century. A long article entitled 'An Afternoon with Downs,' contributed to a Halifax newspaper by Mr. Hardy in 1864 is here reproduced, describing in detail Downs's home and Zoölogical Gardens at the head of North West Arm, near Halifax, and the personal traits of a man whose name is inseparable from the history of Nova Scotian natural history. Downs's "Zoo" is said to have been the first "established on the American continent."—J. A. A.

Beal on the Relation of California Birds to the Fruit Industry.

Part II.—This is the concluding part of Professor Beal's report on the 'Birds of California in Relation to the Fruit Industry.'² Part I, treating of 38 species, was published in 1907 (see Auk, XXV, Jan., 1908, p. 96). The present part treats of 32 additional species, and consists of statements concerning the food found in the stomach of birds taken mainly in the more thickly settled and highly cultivated parts of the State, since they afford a better test of their relation to husbandry than would the same number of birds taken at random throughout the State.

In reference to the general subject, the author states: "Few birds are always and everywhere so seriously destructive that their extermination can be urged on sound economic principle. Only four of the species common in California can be regarded as of doubtful utility: These are the linnet [House Finch], California jay, Steller jay and redbreasted sapsucker. When the known methods of protecting fruit have been exhausted, or cannot be employed profitably, then a reasonable reduction of the numbers of the offending birds is permissible. But the more the food habits of birds are studied the more evident is the fact that with a normal distribution of species and a fair supply of natural food, the damage to agricultural products by birds is small, compared with the benefit."

Of the California Jay it is said that it does "entirely too much nest robbing for the best interests of the State," as well as being a despoiler of fruit. While woodpeckers in general rank high as useful birds, the Red-breasted Sapsucker is classified as more harmful than beneficial, owing to its habit of pecking holes in the bark of trees and stripping it off in patches.

The report is illustrated by eight beautiful colored plates, after drawings

¹Reminiscences of a Nova Scotia Naturalist: Andrew Downs. By Major-General Campbell Hardy, R. A., Dover, England. Proc. and Trans. Nova Scotia Institute of Science, Vol. XII, part 1, pp. xi-xxx. August, 1908.

²Birds of California in Relation to the Fruit Industry. Part II, By F. E. L. Beal, Assistant, Biological Survey. Biological Survey, Bulletin No. 34. 8vo, pp. 96, with 6 colored plates. Washington, Government Printing Office. Issued August 8, 1910.

by Louis Agassiz Fuertes, representing the following species: California Quail, Arkansas Kingbird, California Jay, Brewer's Blackbird, Bullock's Oriole, and Green-backed Goldfinch.—J. A. A.

McAtee's 'Plants Useful to Attract Birds and Protect Fruit.'¹—Attention is here called "to the plants which best serve to provide food for birds and to draw their attention away from cultivated crops." A list of the species of native plants most resorted to for food by birds is given. From this list species can be selected for cultivation which will afford both shelter and a continuous supply of food, including some which retain their fruit through the winter and furnish a food supply at seasons when bird food is hardest to obtain. Food plants are suggested for various groups of birds, and for different regions. The mulberry is recommended as unsurpassed for alluring birds from early orchard fruits. There are also suggestions for providing water and favorable haunts, as well as food, and for the protection of birds from cats and other predatory animals.—J. A. A.

Game Laws for 1910.²—This is the eleventh annual summary of the game laws of the United States and Canada, and reviews the laws which passed, and which failed to pass, during 1910, together with a schedule of open seasons, and the regulations respecting the shipment and sale of game, and the obtaining of licenses for hunting and shipping, under the Federal and State laws of the United States, and the orders in council of the Canadian Provinces. These annual digests are of great importance and convenience as a source of definite information for sportsmen and game protectors, and form a valuable record of progress in bird and game protection.—J. A. A.

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¹ Plants useful to Attract Birds and Protect Fruit. By W. L. McAtee, Assistant, Biological Survey. Yearbook of Department of Agriculture for 1909, pp. 185-196.

² Game Laws for 1910. A Summary of the Provisions relating to Seasons, Shipments, Sale, Limits, and Licenses. By Henry Oldys, C. E. Brewster, and Frank L. Earnshaw, Assistants, Biological Survey. 8vo, pp. 47. Farmers' Bulletin 418, Published September 2, 1910, U. S. Department of Agriculture, Washington.

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CORRESPONDENCE.

The Possessive Form for Personal Bird Names.

EDITORS OF 'THE AUK':

Dear Sirs:—Black, White, Brown, Green, Gray; Hill, Pond, Moor, Marsh, Wood, Lake, Beach; Fish, Bush, Crane, Stone; Little, Strong, Swift, King, Small;—these, and others of the same sort, are common surnames, and as likely to belong to naturalists as to anybody else.

Surely this is a sufficient rebuttal of the arguments in favor of dropping the possessive *s* and apostrophe from the common names of birds and beasts named after men.

Sincerely yours,

GERALD H. THAYER.

Monadnock, N. H.

June 15, 1910.

NOTES AND NEWS.

HENRY HILLYER GIGLIOLI, an Honorary Fellow of the American Ornithologist's Union, died in Florence, Italy, December 16, 1909, in the 64th year of his age, having been born in London, June 13, 1845.¹ His father was Dr. Guiseppe Giglioli, who while a political exile from Italy sojourned for a while in Edinburgh, and later in London where he married an English lady, Miss Hillyer. The younger Giglioli was thus partly of English descent. In 1848 the family returned to Italy, but in 1861 the son, then sixteen years of age, "was sent by the Italian Government to study in London, and selected the School of Mines for that purpose." During the three years spent in London he made the acquaintance of many of the leading English naturalists. He returned to Italy and in 1864 took his degree at the University of Pisa. The following year he received the appointment of assistant naturalist, under Professor De Filippi, to the Italian Government scientific expedition around the world in the war-ship 'Magenta', and upon the death of De Filippi from cholera early in the voyage he succeeded to the "command of the expedition at the early age of 22, but, with his usual energy and resourcefulness, succeeded in carrying out his work satisfactorily, and returned in three years' time, after having circumnavigated the globe." His account of the expedition, published in 1876, forms a volume of over one thousand pages, illustrated by numerous plates and maps. In 1869 he published, with Salvadori, a paper in 'The Ibis' (1869, pp. 61-68) entitled 'On some new Procellariidæ collected during a Voyage around the World in 1865-68,' in which the authors described six new species of Petrels. In a second paper published in 'The Ibis' the following year (1870, pp. 185-187) a new genus and two new species of birds are described by the same authors. His ornithological report of this voyage appeared as a separate work in 1870 (8vo, Florence, pp. 96).

In 1869 he was made Instructor in Zoölogy and Comparative Anatomy of Vertebrates at the Royal Institute in Florence, a position he held uninterruptedly for forty years, or until his decease, becoming, in 1874, Professor of this department and Director of the Zoölogical Museum. In 1876 he "laid the foundation of the fine collection of Italian vertebrate animals, now the pride of the Florence Zoölogical Museum." His subsequent years were devoted to research, chiefly in the Museum, but varied by numerous expeditions in southern Europe, including deep-sea explorations in the Mediterranean which established the existence of an abysmal fauna in this inland sea.

¹ This notice is based primarily on the 'Biographical Notice of the late Professor Giglioli,' by his intimate friend Joseph I. S. Whitaker, published in 'The Ibis,' July, 1910, pp. 537-548.

While Giglioli was first of all an ornithologist, he was an excellent zoölogist in other lines, and was especially interested in deep-sea and pelagic life. His principal ornithological publications relate to the birds of Italy, of which the first, a catalogue of Italian birds, was published in 1881 (*Ann. di Agric.*, Roma, 1881, No. 26; also separate, pp. 133) and the second, '*Avifauna Italica*' (8vo, pp. vii + 625) in 1886. In 1885 he was appointed by the Italian Government to institute an investigation of the birds of Italy, the results of which form three large octavo volumes, of about 700 pages each, entitled '*Resoconto dei risultati della inchiesta ornitologica in Italia*,' of which Part I, '*Avifauna Italica*,' appeared in 1889; Part II, '*Avifauna Locali*,' in 1890; Part III, '*Notizie d'indole generale*,' in 1891. In 1907 he published a second edition of the '*Avifauna Italica*,' in a single volume of about 800 pages.

His collection of the vertebrate fauna of Italy in the Florence Zoölogical Museum is a monument to his zeal and devotion to its formation, it being, it is said, the most complete of its kind in Italy, and probably more complete than any similar collection elsewhere. Shortly before his death it was decided that it should bear his name and be known in future as the Giglioli Collection. Information of this decision was made known to him during his final illness, but the official announcement was made at the commemoration of Professor Giglioli held at the Florence Museum February 2, 1910. The 20th of December had been fixed as the date for the celebration of the fortieth anniversary of his call to the chair of Zoölogy and Comparative Anatomy of Vertebrates at the Royal Institute of Florence, at which the King of Italy was to be present and bestow upon Giglioli the high distinction of '*Grande Ufficiale della Corona d'Italia*.'

Giglioli was an anthropologist and archæologist of note, a geographer of merit, a competent ichthyologist, and held important Government appointments relating to economic zoölogy. As said by his biographer in '*The Ibis*': "Giglioli was a man of wonderful versatility and general qualifications, and, at the same time, most thorough and painstaking in all he undertook to do. His capacity for work was prodigious, as shown by the long list of his published writings, the collections he formed, the many zoölogical explorations carried out by him, and the numberless scientific meetings he attended, and all this over and above his ordinary professorial and other work. In no way exhausted by his day's labors at the Museum, it was his habit to work far into the night at home. . . . Few men perhaps have ever had such a gift of making and of retaining friends as Giglioli had. His geniality formed an irresistible attraction, while the wonderful freshness of youth, which he retained to the last, coupled with his bright intelligence and cheery voice and manner, captivated and held one a willing prisoner. For those who knew him intimately, moreover, he had the additional great charm of loyalty and sincerity, and was a true friend on whom they knew they could rely."—J. A. A.

WILLIAM EARL DODGE SCOTT, a well known ornithologist, died suddenly at Saranac Lake, New York, August 23, 1910. He was born in Brooklyn, New York, April 22, 1852. He was a son of Moses Warren and Juliet Ann (Cornell) Scott, and a great-grandson of Moses Scott, a surgeon in the Revolutionary army and a member of General Washington's staff. His father died when young Scott was five years old, at about which time he was seized with a lameness that defied the best medical skill and proved a serious disability throughout his life, rendering a cane, and often crutches, necessary as an aid in walking. His early education was conducted by a private governess, but later he attended a German academy in Brooklyn, and spent a year at a boarding school in Providence, Rhode Island. He was a member of the first freshman class at the opening of Cornell University in 1868, and the following year entered the Lawrence Scientific School at Harvard University as a special student in zoölogy under the great teacher Louis Agassiz, and in due course received from this institution the degree of B. S. in 1873. During his residence in Cambridge he became one of the original members of the Nuttall Ornithological Club, and in 1884, while residing in Arizona, was elected a Corresponding Member of the American Ornithologists' Union. Two years later, on his return to New York, he was elected to active membership, which he retained till 1894.

Mr. Scott is remembered by the older members of the A. O. U. as an enthusiastic and, notwithstanding his life-long physical infirmity, energetic and indefatigable field ornithologist, conscientious and accurate in his observations and an expert collector. His first notable ornithological trip was to Coalburg, in the Kanawha Valley, West Virginia, when he was twenty years old, the results of this trip being published in 1872, in a paper in the 'Proceedings' of the Boston Society of Natural History (Vol. XV, pp. 219-227) entitled 'Partial List of the Summer Birds of Kanawha County, West Virginia.' In 1874 he spent several months collecting birds in the vicinity of Warrensburg, Missouri, for a normal school at that place, the results of his work at this point being given in 'Notes on Birds observed during the spring Migration in Western Missouri (Bull. Nutt. Orn. Club, IV, July, 1879, pp. 139-147).

In 1875 he was employed by the trustees of Princeton College, in forming, at Plainfield, New Jersey, a collection of birds, and the next year he was appointed Acting Curator of the Princeton College Museum of Biology, which position he held till 1885, when he was made Curator of the Department of Ornithology, a position he held until his death, though compelled by ill health to be a non-resident of Princeton during the later years of his life.

His connection with the Princeton Museum was the beginning of a long period of field work, at first in the interest of the University, but later independently. During the winter of 1875-76 he collected in Sumpter County, Florida; in the fall of 1876 and spring of 1877 along the coast of New Jersey. In 1878 he worked for a number of weeks in the Twin

Lakes region of Colorado, and spent the winter of 1879-1880, on the Gulf Coast of Florida, collecting mainly near the mouth of the Withlacoochie River. In the spring of 1881 he devoted a number of weeks to the study of bird life at Cobb's Island, off the coast of Virginia, and a portion of the summer of the same year at Nantucket Island, Massachusetts, in pursuit of sea-birds.

Up to this time his rich and varied collections of birds were made for the Princeton Museum, which soon numbered thousands of beautifully prepared skins, besides hundreds of specimens finely mounted for exhibition. But in the spring of 1881, he obtained leave of absence to visit southern Arizona, partly on business and partly for ornithological research. Here, chiefly in Pinal, Pima, and Gila counties, he spent the greater part of the next four years, forming a collection of 2500 birds, which later were purchased by the American Museum of Natural History. Leaving Arizona in March, 1886, he proceeded to Tarpon Springs, Florida, where he remained almost continuously till August, 1888, collecting at different points along the Gulf Coast from Cedar Keys to Key West. Later visits were made to Florida in 1890, when several weeks in March and April were spent at the Dry Tortugas, and in 1891-1892, when the period from November 21 to April 26 was devoted to an exploration of the Caloosahatchie region. The winter of 1890-91 was given to ornithological work in the island of Jamaica. Thus from 1875 to 1892 Mr. Scott was almost continuously engaged in field exploration, visits being made to the mountains of Virginia and North Carolina during intervals of rest from work in Florida, and as a respite therefrom.

The rich experience thus gained and the thousands of specimens thus acquired became the basis of numerous important contributions by Mr. Scott to ornithological literature, published principally in 'The Auk' and its predecessor, the 'Bulletin' of the Nuttall Ornithological Club, during the years 1879 to 1892. His explorations have added many species and subspecies to the known avifauna of the United States and quite a number new to science, some of them described by him and some by others on the basis of material collected by him. But perhaps far more important than this have been his contributions to the life histories of many previously little known species, and to a better knowledge of the distribution, migrations, and changes of plumage due to season and age of a large number of others.

Among Mr. Scott's contributions to ornithological literature, in addition to those already instanced, are his 'Bird Studies: An Account of the Land Birds of Eastern North America' (1898), 'The Story of a Bird Lover' (1903), and 'Birds of Patagonia' (4to, pt. 1, 1904, Pt. 2, 1910, with a large portion of the work still unpublished). The 'Story of a Bird Lover,' charmingly written, is autobiographical, and replete with evidence of the intense enthusiasm and wide range of interest with which the author pursued his favorite studies. It contains also a list of his ornithological publications down to the year 1902.

For many years Mr. Scott was deeply interested in the study of the living bird, and for this purpose he maintained for some years a large aviary at his Princeton home. In the last chapter of his 'The Story of a Bird Lover,' entitled 'The Naturalist's Vision,' he relates the growth of his interest in birds as *individuals* and the development of his "laboratory for the study of live birds," in which, at the time of writing, he had installed and under constant observation between four hundred and five hundred birds. At about this time (1901-1904) he published in 'Science' a number of papers on the results of his observations, mostly in reference to the inheritance of song in birds. In 1904 was founded the 'Worthington Society for the Investigation of Bird Life,' at Shawnee, Munroe County, Pennsylvania, by Mr. Charles C. Worthington, along the lines indicated in Mr. Scott's 'The Naturalist's Vision,' with Mr. Scott as Director of the proposed work. (See Auk, XXI, Oct. 1904, pp. 511, 512.) Mr. Scott soon after broke down in health and little has been heard since of this well-conceived project.

His 'Birds of Patagonia' is based on the collections made by the late Dr. J. B. Hatcher and his assistants on the Princeton University Expeditions to Patagonia, 1896-1899. In order to prepare this work, to which he had been assigned, Mr. Scott took the collection to England for the purpose of thorough identification at the British Museum, in which he was assisted by the late Dr. R. B. Sharpe, whose name also appears on the title-page of the work. Although only the first 350 pages (probably less than one half) have been published the manuscript of the whole work had been finished and the completion of the work thus assured. This is Mr. Scott's sole piece of systematic work, but, thanks doubtless to a guiding hand, it forms a most convenient and useful compendium of Patagonian ornithology.

In recent years Mr. Scott suffered seriously from ill health, being thus compelled to give up active work and seek relief in the dry and bracing climate of the Adirondacks. Although apparently benefited for a time by the change, the improvement proved only temporary. His last ornithological paper was published in the July issue of this journal, and is apparently the only ornithological paper issued by him in recent years.

In 1877 Mr. Scott married Miss Marian Johonot, daughter of James Johonot, a well known educator of Ithaca, New York. She manifested always deep interest in his work, and shared with him the vicissitudes and exposures of his various natural history journeys.

ORNITHOLOGISTS will be interested to know that arrangements have been made by the Smithsonian Institution with Mr. A. C. Bent, of Taunton, Mass., for the continuance of the work on the 'Life Histories of North American Birds' which was so ably begun by Major Bendire and for which there seems to be a general demand.

We understand that the work will be conducted on practically the same plan as that followed so successfully by Major Bendire, and its completion

will depend largely on the coöperation of ornithologists in various parts of the country, who are invited to contribute original notes or observations relating to the life histories or habits of birds. The more important of such contributions will be published in the contributor's own words and on his authority. It may not be possible to publish everything contributed, but the material selected for publication will be so chosen as to make the life history of the species as complete as possible and to illustrate variations in habits throughout its range.

Subspecies will be given secondary rank; that is, each species will be treated as a whole so far as its habits are not affected by variation in its environment; but, under proper sub-headings, any traits or habits peculiar to the different subspecies will be clearly set forth, as well as any variations in habits due to changes in environment. This method seems preferable to treating each subspecies separately, which gives the subspecies too much prominence and requires much needless repetition regarding common traits.

The nomenclature and the sequence of the new Check-List of the American Ornithologists Union will be followed as closely as possible, beginning with the Grebes. Other methods of classification have been suggested but it seems best to follow the standard officially adopted by American ornithologists, with which all of us are more or less familiar.

The first volume will probably contain the Pygopodes, Longipennes, Tubinares, Steganopodes and Anseres. Unfortunately these orders include a great many species about which very little is known, notably many of the Arctic species; although the Arctic journals of some of the earlier explorers contain much valuable unpublished material, it is more or less fragmentary and far from satisfactory for the purposes of this work. Expeditions to all the remote regions of North America to gather material, photographs and notes especially for this work, would consume a vast amount of time and money, more than any one man could devote to it in a lifetime. The necessity for coöperation is apparent if the work is to be completed within a reasonable time.

The author will be glad to correspond with any ornithologist, or any careful observer of birds, who would like to become a contributor, and would be glad to suggest methods of study which will give us the information most needed to fill the gaps in our present knowledge. Ample time will be given to each observer to study carefully the life histories of a limited number of species which are most readily accessible.

In addition to the excellent colored plates of the eggs, which were such a prominent feature of Major Bendire's work, it is proposed, provided sufficient funds are available at the time of publication, to still further enrich the work by adding a series of reproductions of the best photographs obtainable, illustrating breeding colonies, nesting sites, nests, eggs and young at various stages of development, of as many species as possible. The author already has a large series of such photographs but

would be glad to receive offers from others to furnish material in this line when the time comes to use it.

It will require a number of years to collect and work up all the material necessary for even the first volume. It is none too early to begin to plan now for the next season's field work. Therefore, the author would be glad to hear from all who are willing to contribute, so that the work can be carefully planned.

THE conservation of bird-life was given due attention at the National Conservation Congress held in St. Paul, September 5-8. An address on this subject was delivered by Mr. Frank M. Chapman; and a plan endorsing the proposed Federal law for migratory birds, was embodied in the platform of the Conservation Association.

AT THE Fifth International Ornithological Congress, held in Berlin, May 30 to June 5, 1910, Section IV, Bird Protection, formulated certain "rules and regulations," which were unanimously adopted by the entire Congress, for an international agreement for the suppression of traffic in the plumage of wild birds for millinery purposes. Mr. William Dutcher, the only American delegate to the Congress, took an active part in the work of this section, and he, with Dr. T. S. Palmer, of the United States Department of Agriculture, were appointed as the American representatives on the International Committee for the Protection of Birds. Mr. Dutcher presented two papers at the Congress, entitled, 'The History of the Audubon or Bird Protection Movement in North America,' and 'Some Reasons why International Protection is Necessary.'

During Mr. Dutcher's absence in Europe, a number of his friends improved the opportunity to give expression to their esteem of his work in this country for bird protection.

"Under the leadership of Mr. W. W. Grant, a committee was . . . formed and contributions solicited to a fund which, in commemoration of the sympathy and support Mr. Dutcher's daughter, during her all too brief life, had always given her father in his ceaseless labors, was named the Mary Dutcher Memorial Fund.

"Both the numbers and the character of the responses which were received to the committee's circular letter, showed that the plan it proposed met with the most widespread and hearty approval. Although only a short time was available, and this at an unfavorable season, the fund amounted to nearly \$7,000 before July 1, and additions to it are still being made daily.

"This substantial testimonial was presented to Mr. Dutcher, as President of the National Association of Audubon Societies, at a luncheon given to him on July 14, shortly after his return from Europe, and if each contributor to the fund could have seen the profound sense of appreciation with which it was accepted, his pleasure in taking part in this well-deserved tribute would have been more than doubled.

"It is proposed that the interest on the Mary Dutcher Fund be used [for bird protection] in such a manner that a report on the results attending its expenditure [can] be rendered yearly." (F. M. C., in *Bird-Lore*, Vol. XII, No. 4, July-August, 1910, p. 172.)

MESSRS. OWEN BRYANT and WILLIAM PALMER, who have been collecting natural history material in Java for the past year and a half, have recently returned home. Both of the travellers suffered from exposure, and from the effects of prolonged work in the tropical lowlands. Their operations were confined to the western end of the island, where they were very successful, collecting both at sea level and up to the summits of Mount Gedé and other peaks. They obtained nearly all of the indigenous birds of western Java, and made large collections in other branches of natural history. The expedition was conducted under the auspices of the U. S. National Museum, and the expenses were defrayed by Mr. Bryant.

PART V of Mr. Ridgway's work on the 'Birds of North and Middle America' is nearing completion, and it is expected the manuscript will be ready for the printer by the first of November. The author is now engaged upon the Woodpeckers, the last family to be included in this part, and is working diligently to bring the volume to a close.

The appearance of his 'Nomenclature of Colors' has been delayed by unexpected mechanical difficulties in printing the plates. These have now been overcome and their preparation is going on rapidly.

A NEW book on 'Methods of Attracting Birds,' by Gilbert H. Trafton (Houghton Mifflin Co.), has reached us just in time for brief mention in the present connection. It is a volume of nearly two hundred pages, with about forty text illustrations, and has been prepared in coöperation with the officers of the National Association of Audubon Societies and is published with their approval. The book treats of nesting-house, how to attract winter birds, the preparation of bathing and drinking-fountains, planting trees and shrubs to furnish food and shelter, bird protection and other allied topics.

THE TWENTY-EIGHTH STATED MEETING of the American Ornithologists' Union will be held in Washington, D. C., beginning November 14, 1910. The business meeting will be on the evening of that date, for the election of officers and members and the transaction of routine business. Tuesday and the following days of the session will be devoted to the presentation and discussion of scientific papers, and will be open to the public. Members intending to present communications should forward the titles to the Secretary, Mr. John H. Sage, Portland, Conn., in time to reach him not later than November 10.

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ERRATA.

- Page 23, line 10, for **practincola** read **pratincola**.
 " 51, footnote 6, for Morristown read Moorestown.
 " 52, line 7, for Parker read Parkman.
 " 133, " 1, for **Nuttalornis** read **Nuttallornis**.
 " 148, " 9, for **Hesperiphona vespertinus montanus** read **Hesperiphona vespertina montana**.
 " 282, " 1, for **californicus** read **californianus**.
 " 300, " 21, for **Sialis sialis** read **Sialia sialis**.
 " 316, " 15, for **semipalmata** read **semipalmatus**.
 " 358, " 12, for *Thrassaëtus* read *Thalassaëtus*.
 Plate XIII, upper figure: the nest is a nest of the Magnolia Warbler,
 accidentally mislabelled Black-throated Green Warbler.

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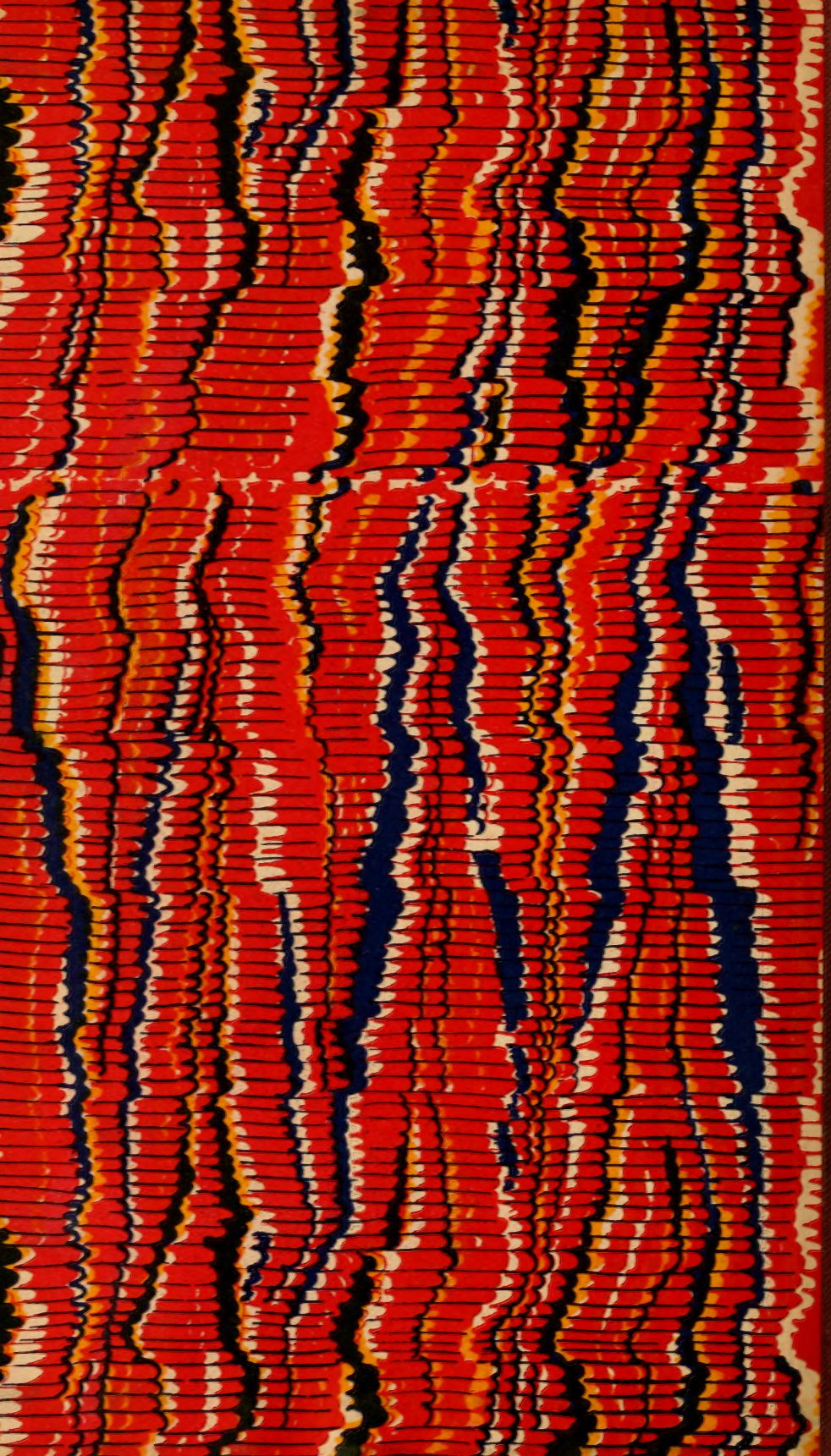
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